OCEANREEF®
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Diving with an Integrated Mask

SSI SPECIALTY COURSE
Instructor Guide

Sergio Gamberini

SSI SCUBA SCHOOLS INTERNATIONAL

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Parts of this guide are based on the content of the OCEAN REEF NEPTUNE SPACE SPECIALTY COURSE MANUAL and thanks to the support of Mrs. Ute and Mr. Miha Frlec. *All practical applications in this course are based on Integrated Diving Masks and products of OCEAN REEF*

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Table of Contents

1. Introduction

This section includes suggestions on how to use this guide, an overview of course philosophy and goals and ways you can organize and integrate student diver learning.

1.1 How to Use this Guide

This guide speaks to you, the Integrated Mask Specialty Instructor. The guide contains four sections – the first contains standards specific to this course, the second contains knowledge development presentations, the third considers confined water and surface training and the fourth details the open water dives.
All required standards, learning objectives, activities, and performance requirements specific to the Integrated Mask Distinctive Specialty course appear in **boldface** print. **The boldface assists you in easily identifying those requirements that you must adhere to when you conduct the course.** Items not in boldface print are recommendations for your information and consideration.

1.2 Course Philosophy and Goals

In this course we will present and evaluate the characteristics inherent in Integrated mask, which is destined to be used by a growing number of divers in the next few years.
There are several benefits to diving with this type of mask,

- Breathing through the nose like Mother nature taught us.
- Protecting ourselves from the cold. We already do it with increasingly sophisticated suits – why leave our most delicate areas exposed to the cold?
- Communicating by talking. It's one of the most obvious natural actions of a human being. Communicating for practical reasons, if not only for safety.

The best way to learn how to dive with a Integrated mask is by doing it. This course philosophy therefore, emphasizes advantages of diving with a OCEAN REEF Integrated mask. Student divers will apply what they learn in knowledge development presentations in a confined water session, and then on at least two open water dives.

1.3 Course Flow Options

Course Flow Options provides a visual representation of how knowledge development, surface

practice and confined water sessions support open water dives.
Before and in water activities, you must complete all knowledge development presentations and make sure the student divers understand the presented content.Completion of a confined water Integrated mask practice session is required of every student. This confined water practical session allows student divers to practice skills such as donning a Integrated mask, equalization techniques, flooding and clearing, body position effects, removing and replacing and emergency procedures.

Two open water dives are required for the student diver to complete this course. Additional open water dives are optional.
You may add more dives as necessary to meet student divers' needs~ Organize your course to incorporate environment friendly techniques throughout each dive, student diver learning style, logistical needs, and your sequencing preferences.

2. Course Standards

This section includes the course standards, recommendations, and suggestions for conducting the Integrated Mask Distinctive Specialty course.

Topic	Course Standard	
Minimum Instructor Rating	Integrated Mask Specialty Instructor	
Prerequisites Minimum Age	SSI Open Water Diver 15 years	
Ratios	Confined Water: 8:1 Open Water: 6:1	
Site, Depths, and Hours	Depth: 18 meters/60 feet recommended Hours Recommended: 12 Minimum Confined Water Dives: 1 Minimum Open Water Dives: 2	
Materials and Equipment	Instructor: Integrated Mask Distinctive Specialty Course Instructor Guide Integrated Mask and Maintenance supplies	Student Diver: Integrated Mask (with appropriate accessories)

2.1 Instructor Prerequisites

To qualify to teach the OCEAN REEF Integrated Mask Specialty course, an individual must be a Teaching status **SSI DiveCon** or higher. **SSI DiveCon may apply for this Integrated Mask Specialty Instructor rating after completing a Specialty Instructor Training course with SSI Instructor Trainer.**

2.2 Student Diver Prerequisites

By the start of the course, a diver must be:

1. Be at least 15 years.

2. Be certified as a SSI Open Water Diver or have a qualifying certification from another training organization.

Verify student diver prerequisite skills and provide remediation as necessary.

2.3 Supervision and Ratios Confined Water Dive

Completion of a confined water Integrated mask training session is required of student divers. This confined water practice session must be completed prior to making the first open water dive of this specialty course but can be combined with it.
During the confined water session, student divers must be accompanied by the instructor conducting the course. Additional confined water sessions may be added at your discretion and may include a scuba skills update.
The maximum in water ratio for confined water sessions is 8 student divers per instructor (8:1).
Open Water Dives
A Teaching status Integrated Mask Specialty Instructor must be present and in control of all activities. During the Integrated mask open water dives, student divers must be accompanied by the course instructor. The Specialty Instructor must ensure that all performance requirements are met. The Instructor must be familiar with the use and technique of the Integrated masks he is using during the course - this specialty is designed and streamlined to the use of products of OCEAN REEF Inc.

The ratio for open water dives is 6 student divers per instructor (6:1)

2.4 Site, Depths, and Hours Site

Choose sites with conditions and environments suitable for completing requirements. Shallow dives will provide divers with more time to complete tasks. Use different open water dive sites, if possible, to give student divers experience in dealing with a variety of environmental conditions (incorporate environment friendly techniques throughout each dive) and logistical challenges. Practice skills in a confined water sessions first to better prepare divers to apply skills in open water later.
Depths
18 meters/60 feet recommended
30 meters/100 feet limit for Dive 1 & 2
Hours
The Integrated Mask Specialty course includes two open water dives.

2.5 Materials and Equipment

A. Instructor Materials and Equipment

Required
OCEAN REEF Integrated mask and appropriate accessories (such as SAV (Surface Air Valve),quick disconnect inflator hose, nose plug extensions, Octopus w/ quick connection).
Spare mask (traditional diving mask).
Diving with Integrated Mask Specialty Course Instructor Guide.
Screwdriver needed for student divers to adjust the equalization plugs. Standard Instructor Equip-

ment according to SSI Training and Dealer Standards.

Recommended

Maintenance and spare parts kit and tools.

B. Student Materials and Equipment

Required

OCEAN REEF Integrated mask and appropriate accessories (such as SAV (Surface Air Valve), quick disconnect inflator hose, nose plug extensions, Octopus with quick connection).

Spare mask (traditional diving mask).

Standard Diver Equipment according to SSI Training and Dealer Standards

2.6 Assessment Standards

The student diver must demonstrate accurate and adequate knowledge during the open water dives and must perform all skills (procedures and motor skills) fluidly, with little difficulty, in a manner that demonstrates minimal or no stress.

2.7 Certification Requirements and Procedures

By the completion of the course, student divers must complete all performance requirements for Diving with OCEAN REEF Integrated Mask Confined Water Dive and Open Water Dive One and Two. The instructor certifying the student diver must ensure that all certification requirements have been met.

2.8 Links to other Courses

The Diving with Integrated Mask Specialty Course is a prerequisite for the Communication with OCEAN REEF Integrated Mask Specialty Course.

3. Knowledge Development

A mask is the crucial piece of equipment for beginning to dive. It creates a bubble of air between the eyes/nose and the water. Sealing this bubble against the face, a mask creates a "window" through which we can observe what goes on under the surface of the ocean.

From the earliest goggles, masks have evolved adopting increasingly lightweight, durable, comfortable, and moldable materials, in more pleasing and modern shapes. Used for fishing, working, or simply to explore, masks have generally been kept separate from the breathing system, whether this was a snorkel to use on the surface or a dive regulator. In the pioneering years it was fairly normal to use masks that covered the eyes, nose, and mouth, with strange snorkels that had a floating ball in a joint on top to prevent water from entering the mask during the dive. They were cumbersome and relatively uncomfortable during the dive, since their volume made them tend to rise toward the surface. However, they did allow divers to breathe through their noses in a physiologically natural way.

The commonly-used conventional masks force divers to breathe unnaturally through the mouth, but their size, light weight, design, and cost amply justify their use. They do not, however, permit another important activity: the communication! When a diver must breathe through a mouthpiece and does not have a sufficient volume of air in front of the mouth, this important function becomes impossible.

Nose breathing and the possibility to communicate are special properties offered by the so-called "full face masks", which can be thought of as halfway between a diving helmet and the common dive mask. They isolate the eyes, nose, and mouth, and were originally created to protect the face from cold and pollutants. For many years they were the sole province of the military and commercial divers.

In use in diving since the 1950s, the full face mask has undergone numerous modifications by its various manufacturers in order to satisfy the market's increasing requirements for comfort and performance.

A Brief History
The four generations of full face masks and integrated masks

The earliest full face masks were simply a downward extension of a conventional mask to cover the mouth. There was no separation (orinasal) between fresh and exhaled air, resulting in an increase in CO2. A conventional regulator was used, connected to special rubber ports by removing the mouthpiece and plugging the mouthpiece base into the appropriate housing. This meant that practically any regulator could be connected. This first generation of masks, with its simple construction, increased the protected area of the face, but it reduced the functionality of the regulator and the safety of the product because of the CO2 that accumulated inside the mask. Nasal breathing no possible.

The second generation of masks preserved the same principle of connecting a conventional regulator to a special opening on the rubber body of the mask, but introduced the concept of the orinasal pocket, or semi-mask. The first connections began to appear that were made especially for microphones, which could be connected to communication units by wires or ultrasonically.

The third generation of masks made a significant jump in quality, because instead of connecting any regulator with a mobile connection (not awfully professional), a regulator was designed specifically for this use, and could NOT be used for any purpose other than the full face mask. In the spirit of building a device that was not only protective but also high-performing (such as for breathing), the focus began to grow into dedicated components and the visor began to evolve, starting with the use of lighter and more mechanically durable plastic polymers.

The fourth generation of masks took another quality leap forward in terms of the regulator. The regulator was inserted inside the volume of the mask itself, creating a more compact device. It became clear that while expanding the field of vision, it was necessary to avoid bulky protrusions outside the mask, and air bubbles need to be released symmetrically to improve user comfort. In both the third and fourth generations, inhalation and exhalation were both achieved using a regulator as in a conventional system. In the fourth however, subjective philosophies led to the addition of an airflow control valve, in awareness that in addition to adapting to multiple intermediate pressures, this solution also provided an answer to operating requirements.

The fifth generation is in truth the ZERO GENERATION: the leap from conventional full face mask to the INTEGRATED mask.

OCEAN REEF not only incorporates the regulator into the mask in order to balance all that a diver needs; such as weight, buoyancy lift, visual field, breathing effort in various positions and under differing conditions, profiles, and bubbles, but the company also strives to incorporate everything that can be useful, increase safety, and make dives more enjoyable.

This led to the creation of a series of integrated solutions, such as the frame for using corrective lenses inside the mask, the surface air valve that is built into the mask profile, lights installed in the upper part of the visor and controlled by a switch/battery compartment that is efficiently connected to the SAV, tank pressure and depth displays applied to the sides of the visor, and naturally, various types of communications units.
There are even solutions for drinking underwater as well as other elements that “integrate” into the architecture of the mask.
In this book we’ll look into the latest generation of masks from OCEAN REEF, introducing the concept of the “integrated mask” and expanding upon all the technical and usage aspects of a product that will likely change the underwater diving technique radically in upcoming years.

3.1 Conduct

Use the following teaching outline for instructor-led presentation, which appears in point form, as a road map of the conduct, content, sequence and structure for the Diving with Integrated Mask Specialty course.
The result should be student divers with theoretical knowledge and pragmatic experience who can adapt what they’ve learned to future Integrated mask diving situations.
Regardless of how you conduct knowledge development student divers will be able to explain the following learning objectives

3.2 Knowledge Development Learning Objectives

By the end of knowledge development, student divers will be able to explain:

1. The theory of diving with a Integrated mask
2. Integrated mask construction and auxiliary equipment.
3. Why use a Integrated mask for diving?
4. What are the parts of a Integrated mask?
5. How do you breathe underwater with a Integrated mask?
6. How do you equalize wearing an Integrated mask?
7. How do you defog an Integrated mask?
8. How do you flood and empty an Integrated mask?
9. How do you remove and replace an Integrated mask?
10. The planning, organization, and procedures of Integrated mask diving.
11. How do you prepare for a dive with a Integrated mask?
12. How do you enter the water?
13. How do you descend on a dive with an Integrated mask?
14. What is the correct head position when diving with an Integrated mask?
15. How do you ascend and leave the water after a dive with an Integrated mask?
16. The problems, hazards, procedures, techniques, and safety considerations of Integrated mask diving.
17. What kind of inconveniences can occur on a dive with an Integrated mask?
18. What kind of problems and emergencies can occur on a dive with a Integrated mask?
19. Routine, user-level, preventative maintenance and performance checks on Integrated masks.
20. How do you properly maintain an Integrated mask?

3.3 Knowledge Development Teaching Outline

A. Course Introduction

1. Staff and student diver introductions

Note:
Introduce yourself and assistants. Explain your background with Integrated masks and Integrated mask diving if your student divers aren't familiar with you.
Have divers introduce themselves and explain why they're interested in Integrated mask diving. Break the ice and encourage a relaxed atmosphere.
Give times, dates and locations as appropriate for classroom presentations, confined water and/or surface practice sessions and open water dives.

Review with student divers other skills they'll want as a OCEAN REEF Integrated Mask Diver

2. **Course goals - this course will help:**
   a. Develop your practical knowledge of Integrated mask diving.
   b. Increase your diving skills.
   c. You plan, organize, and make Integrated mask dives.
   d. Improve your diving ability and provide you with additional supervised experience.
   e. Encourage you to participate in other specialty training. Course overview

3. **Course overview**
   a. Classroom presentations and confined water and surface practice sessions.
   b. Open water dives. There will be at least two open water dives.

4. **Certification**
   Upon successfully completing the course, you will receive the Diving with Integrated Mask Specialty certification.
   Certification means that you will be qualified to:
   a. Plan, organize, make, and log open water dives using a Integrated mask in conditions generally comparable to or better than, those in which you are trained.
   b. Apply for the Specialty Diver or Master Scuba Diver rating if you are a SSI Open Water Diver
   c. Diver and a SSI Stress & Rescue Diver (or qualifying certification from another training organization) with certification in four other SSI Specialty ratings in addition to OCEAN REEF Integrated Mask Diver.

Note
Use the SSI Training Record File. Explain all course costs and materials and what the costs do and do not include, including equipment use, boat fees, etc. Explain what equipment student divers must have for the course, and what you will provide. Cover and review points about scheduling and attendance.

- Class requirements
- Complete paperwork
- Course costs.
- Equipment needs.
- Schedule and attendance.

3.4 Knowledge Development Summary

3.4.1 When and Why to Use a Full Face Mask

Instead of asking yourself, “Why dive using a full face or integrated mask”, perhaps you should be asking: “Why not?” Sometimes conservativism can obscure advantages that would substantially improve our activities. We are resistant to change… Yet if we open our minds we realize, “Something else exists beyond what we’ve become used to using or doing.” For many experts and beginners, it’s tradition to use a conventional mask with the regulator held between the teeth, breathing through the mouth, and it’s standard practice to teach the first rules of getting around underwater using these tools. Basically, three simple arguments justify the use of a full face or integrated mask.

- Breathing through the nose like Mother nature taught us.
- Protecting ourselves from the cold. We already do it with increasingly sophisticated suits – why leave our most delicate areas exposed to the cold?
- Communicating by talking. It’s one of the most obvious natural actions of a human being. Communicating for practical reasons, if not only for safety.

Nonetheless, these reasons are sometimes not sufficient, and a broader examination is required.
A recent survey conducted over the internet demonstrated that over 70% of beginners experience initial discomfort when diving and breathing through their mouths with a conventional regulator. A certain percentage is afraid of losing the regulator, and as a consequence clench their teeth around the mouthpiece so tightly that they fatigue their facial muscles.
Some even give up diving for this reason, although most people continue, and adapt. Conventional masks are lightweight, can be put on quickly, and after an initial shock, regulators fully satisfy a diver’s demand for air. On the surface, you can free yourself from your mask and regulator in seconds; these crucial points push the rest into the back of the mind (cold, unnatural breathing…). What’s more, for people who are rooted in the classic concept of diving (even a bit “militant” and “aristocratic”), speaking underwater would be “breaking the idyll of underwater silence”)!The reality is that everything has its place, and like always, an open and receptive point of view (even a bit revolutionary) is what leads to true evolution.
So, we should ask ourselves, “why we dive”? If you dive for work there are very specific requirements, and equipment must be chosen and designed for that specific purpose, to protect yourself

from the cold, from pollution, and/or to work safely and comfortably. Professionals, recreational and technical divers select their equipment the exect way by the same rules.

According to the OCEAN REEF concept, an INTEGRATED mask should be used when:

- you want to breathe naturally through your nose rather than your mouth
- you want the freedom to have nothing clenched between your teeth and you want to communicate underwater
- you want to increase thermal protection for your face
- you want to increase your field of vision
- you want to integrate multiple functions such as lighting, dive information, breathing, and communications in a single, compact element.

When making this choice, it's crucial to get plenty of information on certain elements and evaluate the features evenly and fairly. For example, an integrated mask is larger and heavier than a conventional one: true! But it also integrates a regulator second stage and spaces dedicated to accessories that could not otherwise be so conveniently integrated with a conventional mask. It's visually more complex, and seems more difficult to use: true! It seams but it isn't! Aggregating multiple elements by definition seems more sophisticated and complicated, but it's all proportional to the opportunities that using these elements deliver. There are two classic questions that are always asked about a full face mask:

- What happens if it floods?
- What do I do if the regulator breaks?

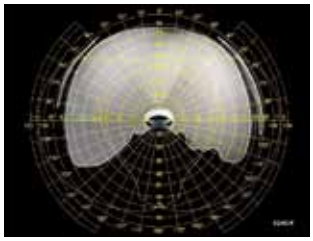
An OCEAN REEF integrated mask cannot flood like a conventional mask. With a traditional mask there is always a pressure difference between the outside and the inside, and for this reason it's relatively easy to flood the mask. But in the case of an INTEGRATED OCEAN REEF mask, the internal pressure always balances to the external pressure, every time you breathe. To flood the mask you would have to take it off your face! If the second stage breaks or you run out of air, in conventional diving it's relatively easy to switch to an alternate source, and because the mask is separate from the regulator, it is not involved. With an integrated mask, options for replacing the air source are different, but they still exist (SEE EXERCISES should know – Section 9) and require the same level of preparation and education. In truth, one system is NOT an alternative to the other. Both have applications that depend on the subjective needs of each activity, and as always, it's advisable to understand both techniques so you can handle any situation. It's definitely a mistake to rely on preconceived notions and not to expand your understanding. Let's not forget what happened with buoyancy compensator vests, or with dive computers, or more recently with dry suits.

3.4.2 Full face masks (the elements comprising a “full face” or “integrated” mask)

Now let’s take a closer look into how our OCEAN REEF mask is made.

3.4.2.1 Visor

This is the part that allows divers to see and explore the underwater world. It was generally made of tempered glass. Some models currently on the market still use it (Kirby Morgan/ Scubapro). Glass is an excellent transmitter of light and is highly resistant to scratches. However, it has lower mechanical durability and cannot be affordably shaped, so it can only be used flat. This means if lateral vision is required or desired, the only option is to create waterproof joints that create breaks in the view, both complicating and weighing down the mask. Shaping glass to achieve curved surfaces would require a melting process at extremely high temperatures, and in any event would not achieve parts that are optically acceptable for underwater use.
The visor on the OCEAN REEF mask is polycarbonate, treated on both sides with a protective scratchproof lacquer that also protects against chemical aggression. The various technical characteristics are listed below, but we can summarize by saying that the mask made of “techno-polymer” (which is a plastic with advanced technical properties) makes it possible to shape the profile and provides mechanical resistance to impacts far superior to glass. This allows us to achieve an excellent field of vision (in which images are clear) that is well defined, and a “perceptive” area that expands the general visual field.
It should be noted that without a mask, in the air, our stereoscopic vision is particularly broad, but only 60 spherical degrees around what we’re looking at can be said to be in optical “focus”. The rest is unfocused perception, but it still essential for human ergonomics. The visor we are describing has both a very broad field of vision, and perception that noticeably reduces all the blind or cloudy spots that are known as tunnel vision in conventional masks. Masks that for physical reasons create a tunnel in front of the eyes have no option other than to draw the glass as near to the eyes as possible to expand the visual field as far as possible.



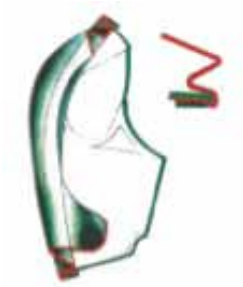
3.4.2.2 Protective shield

The visor is provided with a protective shield that is removed before use. This shield is then put in place for storage and when transporting the mask.

3.4.2.3 The facial sealing system

The face seal

The face seal is another critical feature of any mask, whether conventional, full face, or the latest-generation of integrated models. In the OCEAN REEF model, a patented spring-effect solution has been adopted. The shape of the seal that rests against the face is especially wide and is "S" shaped, acting like a spring that presses continuously and evenly along the face. The evenness of this compression is also guided by several design solutions which convey pressure evenly along the entire contour in contact with the face. This creates a "floating" effect as the seal rests against the face.

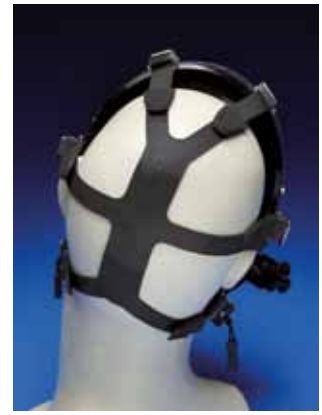


Even the material was selected in order to maintain constant elasticity even under differing environmental conditions (cold or warm).

Two sizes are available: small/medium and medium/large. A caliper is used to measure two dimensions on the face, and a special table is used to select the size that is best suited for each diver's face. It is interesting to note that these two measurements are the distance from below the chin to the upper part of the nose, and the space between the cheekbones. A close-up of the kit and an explanation of how to take these measurements is provided in the "Accessories" section.

Harness and strap

The harness securely fastens the rubber section against the visor, creating the so-called "seal of the mask". The design ensures that the face seal around the visor compresses consistently. The buckle holders (6 pcs) are positioned approximately 60° from each other and allow the strap to convey its pressure to the face in a very comfortable and dry fashion. In fact, the strap does not exert pressure directly on the rubber section as it does in traditional masks. Instead, acting on the harness, it uses the seal as a spring that rests on the contours of the face. The strap in turn is not very flexible, precisely so that it can continuously transmit tension to the harness and the rubber body without being subject to excessive stretching or contraction. It is easy to adjust the strap (see below) thanks to the stainless steel buckles and roller.



Quick release system for the mask

The lower buckle holders feature quick release that make it faster and easier to remove the mask from your face. There are two models. The classic pull fastened to the buckle holder (G.divers model) or the bolted cross pull. Using different procedures, both allow for quick release of the lower straps and therefore removal of the mask from the face.

In the case of the G.divers pulls, simply feel for them, grab, and pull forward. As the buckle holder bends, it allows the strap to slide through and the mask to be removed very quickly. Then simply lift the mask upward to remove it completely. The quick release

systems used in the other masks have the diver pull forward and then upward with the index and ring fingers, allowing the strap to slide through and the mask to come off.

3.4.2.4 Side port (left) for communications unit

On the left side of the mask there is a connector labeled “COMMUNICATION”. It is covered by a removable cap that is screwed down and a flat gasket. The connector leads directly into the orinasal pocket. This is where the microphone including service and call button is installed for both wired and wireless units. Once the cap is removed and the flat gasket is safely in its housing, the microphone is inserted from the outside. The screw that supports the small unit is tightened and the microphone is bent into a position that does not interfere with the diver’s lips, checking that the white membrane on the microphone is facing the visor.
Note: Do not over-tighten the PPT on the mask, and in particular check that the flat gasket is still in place before inserting the unit.

3.4.2.5 Side port (right) for surface air valve (SAV), octopus and accessories.

On the right side of the G.divers mask there is a connector labeled SAV/OCTOPUS. It is covered by a screw-on cap with a flat internal gasket. The connector has an internal one-way diaphragm valve.
This connector can be attached either to a surface air valve (SAV) or to a fitting that makes it possible to connect a conventional regulator.
SAV - surface air valve. When open, it allows the diver to breathe surrounding air while on the surface with the head out of the water to avoid wasting the air in the tanks. The valve has a rotating cap which unscrews open and screws closed. When the valve is open the regulator does not engage. Remember to close this valve before diving. In the Space, Raptor, Predator, and Iron Mask models the SAV is incorporated with a special model in the mask. The working principle is similar to what we explained above. In both versions of the mask, the right side port can be completely removed to allow various accessories to be inserted, such as lighting or drinking systems.

3.4.2.6 Breathing system

Regulator, balanced and dedicated
The regulator is an integral part of the mask, and is designed specifically for use in this application. It is quite different from conventional models. The physics of a system like this are in fact rather complex, since we are dealing with volumes of air between the air injection nozzle and the lungs as well as varying physical positions assumed by the diver that affect the differences in relative external pressure among the various components of the regulator. We must also consider general aspects such as the option to drain residual water

inside and avoid limiting movement of the jaw that is essential for speaking. All of this is very different from the extremely compact spaces of a conventional regulator held between the teeth and used solely for breathing.
Air is managed in the inner mechanical area similarly to a conventional regulator, and then enters from the bottom flowing upward along the visor and thereby eliminating the problem of fogging. Then, through the one-way valve (located on the orinasal pocket) it enters the inner part of the mask and is breathed by the diver. Exhalations pass through the lower exhaust valve, either fixed or directional. This gives the mask also excellent properties in cold water because the diver doesn't exhale wet air from the lungs in the regulator. One of the freezing origin.

Airflow control
At the other side of the hose connection there is a knob. It works on the mechanism by adjusting the flow of air to the mask. As we'll see below, the diver's position (looking upward, downward, to the side, or upside down) alters the performance of the regulator and thereby changes breathing effort. The diver must use the airflow control to find the right balance. For example, during the beginning of the dive, it's always advisable to keep the adjustment knob mostly closed. The mask is in fact very sensitive, and in the first few meters overly soft flow from the regulator will manifest as a vibration in the main diaphragm. As you dive, progressively open the flow adjuster to keep the flow consistent.

Dive/Pre-Dive
Alongside the flow adjuster there is a +/- two-position lever called the "Dive/Pre-Dive system"(Space,Raptor,Predator and Iron Mask only) . Moving the lever to the "-" position partially closes the air input opening (you can see this by looking at the regulator from above inside the mechanism. It is a hole measuring approximately 5 mm on the chrome-plated metal body). Reduction of air flow impedes initiation of the Venturi effect, which leads to free flow. This can occur out of the water or due to a sharp blow (generally this happens to a normal second stage when it slaps against the water or another object. The Dive/Pre-Dive positioned on the chin is a "safety" function to eliminate the possibility of spontaneous free flow out of the water. Immediately before the dive, move the lever to "+" to get maximum performance from the regulator. The Dive/Pre-Dive lever is deliberately stiff in order to prevent it from switching accidentally or unintentionally.

Orinasal pocket and air circulation
The orinasal pocket, or "semi-mask", is fastened inside the mask and serves a vital function in the technology of the device: it keeps clean air for inhalation separate from the carbon dioxide and humidity-laden exhaled air. It does so thanks to a good seal in the nose and mouth area, two one-way valves located in the upper part of the orinasal pocket that act on nylon/glass valve housings, and because exhaled air is expelled through the valve

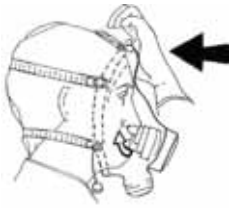
below the orinasal pocket itself. When the diver inhales, air enters the mask from the regulator body and ventilates the visor from the bottom up, providing constant anti-fogging action. The air then enters the orinasal pocket through two symmetrical valves located on the pocket itself, and is inhaled by the diver. When the diver exhales, the seal of the orinasal pocket and the two valves do not allow the air to return to the main area of the mask where it originated. Instead, it exits through the exhaust valve at the bottom of the mask.
Exhaled air is always very humid, and it tends to condense on colder sections, fogging them. If the visor tends to fog, this may be caused by a poor seal in the orinasal pocket or a malfunction in the valves. If this occurs, it's a good idea to check that each component is assembled correctly. If everything is assembled correctly yet humidity persists, it may be due to heavy evaporation of residual water remaining on the visor (wet mask) paired with low temperatures in the outside environment.

Exhalation valve

In the lower part of the mask we find the exhaust valve, which can be fixed (G.divers models) or adjustable (Space/Predator/Raptor/Iron Mask models). The air exhaled into the orinasal pocket exits through this valve. Both models feature small holes on the valve manifold and inside that direct any water outside the mask. This is one of the reasons for positioning the air exhaust valve independently instead of keeping it on the regulator. The directional valve has 4 positions that allow the diver to exhale on both sides, keeping bubbles away from the front visor, on a single side (for example when you do not want the bubbles to interfere with a communications unit), or to close the valve (though not completely), making it possible to assume a head-down position without bothersome spontaneous free flow triggered by the change in external pressure between the exhaust valve and the regulator. It is generally necessary to adjust the flow in advance and find the correct balance that achieves efficient operations without wasting air.

3.4.2.7 Equalizing

Because the visor is rigid, divers cannot access their noses to simply squeeze with their fingers as they would in a conventional mask. The mask has an adjustable internal equalizing system that consists of silicone blocks fastened to adjustable supports, allowing divers to block their nostrils using a special gesture on the visor (see details below). The base for the blocks can be adjusted in three directions to adapt the system to different configurations of the diver's nose and face.



The equalizing system must not obstruct the nose in any way during the dive, and should only work when necessary. This allows breathing and conversation to proceed normally without adverse effect (speaking with a blocked nose is uncomfortable and changes your tone of voice!)
The equalizing frame can be raised or lowered perpendicularly to the mask using a screwdriver. The silicone blocks can be moved nearer to or farther from

the nose (WITHOUT INTERFERING WHEN NOT IN USE) using the appropriate size of insert (provided with the mask, in three sizes: 3, 6, and 10 mm) on the seats where the silicone blocks are placed. The inserts bring the blocks closer to the nose. This can be useful not only for people with flatter noses, but also for those who wear the mask over a wetsuit hood, thereby distancing the mask (and the equalizing system along with it) from the face. The inserts bring the equalizing block to a manageable position. Finally, the blocks can be rotated like cams on the pin to which they are fastened, allowing them to be arranged closer together or father apart depending on the shape of the nose.

3.4.2.8 LP Hose and 1st stage

The low pressure hose (LP) connects the mask to the 1st stage with standardized fittings and lengths. The 1st stage used for CE Certification is the OCEAN REEF SL 35TX with INT or DIN 300 bar fitting. The integrated mask functions best at an interstage pressure of 9.5 - 9.8 bar.

3.4.3 Using the mask

3.4.3.1 Preparation

For any dive to succeed, it is necessary to prepare all equipment properly.

1. Check that the mask has not been tampered with, and has no broken or missing parts.

2. How to customize the equalizing system: This operation can take up to 5 or 10 min. (first time only), because it must allow the diver to equalize comfortably and safely. This can entail donning and doffing the mask multiple times. Once the system has been adjusted properly, you won't need to "waste" these precious minutes for subsequent dives. To begin, for convenience sake move the harness to the front of the mask so you can quickly bring it up to your face over and over. The adjustment must allow you to keep your nose free under normal breathing conditions, and whenever you push the forehead or front of the mask against your face, it must fully block your nostrils so that you can equalize your ears. When the adjustment is complete, return the strap to its natural position and run a final test by putting the mask on completely as if to begin a dive. If the results are unsatisfactory you'll have to start over.

3. Check operation of

    a. Regulator adjustment knob – rotation in both directions
    b. Dive/Pre-Dive – rotation
    c. SAV surface air valve, open/closed, attachment to the mask
    d. Exhaust valve (if adjustable, check all four positions)

e. Functionality of the various connected accessories
f. Connection to the first stage, check that the hose is screwed on properly
g. Regulator purge button, press to check the regulator is activated
h. Straps slide through the buckles

3.4.3.2 Donning and doffing the mask

Putting on the mask correctly is the second crucial step in the success of the dive. A mask worn incorrectly makes the dive unpleasant and causes leaks of air, discomfort in the jaw, excessive vibrations, and fatigue in the neck.
The correct procedure for putting on the mask is the following:

1. Check that the tank is open and the mask is connected.
2. Check that the straps are all at maximum length.
3. Put on the mask, and if installed, make sure that the surface air valve (SAV) is open to allow air to pass.
4. Pull the central portion of the harness all the way down to the nape of your neck.
5. Adjust the six side straps beginning from with those in the middle, then the ones on the bottom, and ending with the top two straps.
6. With the low-pressure hose connected, press the second stage purge button and check that air flows freely.
7. Release the button and make sure that the flow of air stops.
8. Close the surface air valve (if installed) before descending.

3.4.3.3 Donning the mask with a hood

The hood must always be put on before the mask.
The mask can be worn with the face seal both over or under the hood. Keep in mind that if you wear it “over”, the seal will press against the material/fabric of the hood. If this material has any nicks or gaps, they can become channels for air leaks that will increase consumption. It’s preferable to use a hood with a smooth neoprene exterior that is free of stitching running across the mask.
If the mask is worn under the hood, you must keep in mind that it’s possible for a small amount of air to filter from the seal and end up inside the hood, inflating it. This phenomenon is well known by suit manufacturers, who often include a small exhaust valve on top of the hood. If your hood does not feature this valve, it’s advisable to install one before using it with the mask.

3.4.3.4 Regulator sensitivity and consumption

Sensitivity
Regulators are especially sensitive to changes in the diver’s position in the water and to pressure.

In shallow water (within 2-3 meters), if the adjustment is too open, you'll notice a vibration every time you inhale. Simply turn the flow adjustment knob gently to eliminate this vibration, which is caused by the high sensitivity of the regulator combined with the physics of the mask (internal air volume and distance of the regulator body from your mouth).

Air consumption
People mistakenly think that the volume of the mask is correlated to air consumption. The bigger it is the more you consume. Wrong! Consumption is determined by other factors. If you think about it, regardless of the volume of your mask, the air you inhale from the tank is equal to the volume that your lungs are able to draw in. Whether you're wearing a full face mask or using a conventional regulator, your lungs are always the same! However, consumption can and does vary according to certain factors.
Speaking results in higher consumption, of up to 15 to 20%. That's reasonable, thinking about how you breathe when you speak.
Switching from one breathing method to another requires you to adapt, and people who breathe through their mouths tend to consume more at the beginning. However, after a bit of experience, it's even possible for you to reduce your consumption compared to conventional masks.

3.4.3.5 Body Position and Effects on Regulator Sensitivity
The sensitivity of the regulator changes depending on the diver's relative position in the water. It becomes stiffer when you look upward, and softens when you look downward, like any regulator. In addition, exhalation effort is slightly higher when maintaining an upright position, while there is a tendency for free flow to occur when you're in a head-down position and the exhalation valve is higher than the regulator.

3.4.3.6 Breathing
Breathing through the nose is absolutely natural for all of us, but it can feel a little strange when you've been trained to use normal mouthpieces and regulators. The first time it can even seem a little unsettling to keep your mouth closed and breathe through your nose, but you'll get used to it right away. The breathing technique is completely similar to conventional technique. Inhale, brief apnea, and exhale. It's incredibly pleasant to breathe so normally. Still, nothing's stopping you from breathing through your mouth as well if you like.

3.4.3.7 Equalizing Pressure in the Mask
With each breath, the mask balances its own internal pressure with the outside pressure, so the mask squeeze effect (a common problem in traditional masks) cannot happen with an integrated mask.

3.4.3.8 Buoyancy Lift and Weight of the Mask
This is a truly important concept to keep in mind when using full face or integrated masks.
1. These masks have a slightly higher volume than conventional masks.
2. They are also heavier because they integrate the regulator, which would otherwise be counted separately.

3. It can be helpful to increase your weights by approximately 500 grams (1 lb) to compensate for the buoyancy lift added by using an OCEAN REEF mask (other models require much more weights!).

There are two requirements that must be satisfied to use it comfortably.

a. The weight must be contained to ensure that transport and use out of the water is not stressful or bothersome.
b. The volume creates buoyancy lift underwater, which must be as low as possible to reduce upward compression on the chin from below, which can create a sensation that your mask is falling off and can tire the muscles in your neck.

Older models offered lead inserts to compensate for the strong buoyancy lift, but as soon as the diver exited the water the mask became heavy and uncomfortable. Current technology focuses on filling the volume of the mask with functional parts that have specific weights that are as neutral as possible, in order to avoid weighing down the product while still decreasing the lift volume.

3.4.3.9 Defogging and Fogging in the Visor

While in conventional masks anti-fogging strategies were used for the inside of the glass, in an "INTEGRATED" OCEAN REEF mask defogging is achieved thanks to the circulation of air described previously.
We should however mention certain situations that we've learned to handle through experience.
Especially Cold Water
During dives in particularly cold water, the difference in temperature between the face and the water surrounding the mask can be as high as 30 or more degrees. If the mask is wet inside or the face is damp, this wide temperature gap will cause the humidity to condense on the inside of the visor. There are two solutions to this problem.
Keep the inside of the mask and the face dry, in order to eliminate this formation of humidity.
Hold down the purge button on the regulator to "cool" the inside of the visor. This solution can only be temporary however. It is always better to keep the inside of the mask as dry as possible.
In any event you can still spritz the inside of the visor with anti-fogging solutions.
Leaks inside the mask
Under normal conditions, fogging indicates leaks, which are almost always caused by a poor seal of the orinasal pocket against the face or the valve itself. It is also possible that the orinasal pocket is not seated correctly or that the fastenings for the exhaust valve or the communications unit have come loose. Regardless it is always a good idea to check the mask prior to beginning dive to eliminate this problem. Don't forget that in addition to humidity, CO2 also enters through these leaks. That's exactly what we want to avoid!

3.4.3.10 Entering the Water

Entering the water from shore is done just as you would while wearing a traditional mask. Using the quick coupler, you can hold the mask in your hand, make the connection shortly before, and

then put it on. When you enter the water from a boat or pier with a traditional mask, it's always a good idea to steady the mask with one hand to avoid losing it when you hit the water. With a full face mask this problem is very unlikely to occur, but it's still a good idea to put a hand on the regulator and hold the mask firmly.

3.4.3.11 How to descend

As you descend, it's a good idea to assume the most comfortable position. In general, breathing is most comfortable with your head up and your feet down. Descending with your head downward can cause free flow and tire your neck. You should equalize pressure using the procedure described previously, pressing the upper section of the visor or pushing the mask upward from the regulator. Both methods push back the equalizing device to close your nostrils.

3.4.3.12 Correct head position with an integrated mask

There are no special differences compared to using conventional equipment.

3.4.3.13 How to exit the water

When you reach the surface, it's worth taking a second to open the SAV (when it's particularly cold and you don't wish to remove your mask), or to take the mask off entirely, leaving it attached to the hose.

3.4.4 Exercises You Should Know

All these exercises should be done first in the pool or confined area and then repeated in an open water environment.

3.4.4.1 Surface Air Valve - Octopus Connection

- Make sure that the mask has an SAV installed (surface air valve).
- Check that the valve works, opening and closing easily. You should not have to overexert it to open or close the valve.
- With the regulator connected to the tank and the air valve open, put on the mask, checking that air flows regularly.
- Open the SAV. The regulator should stop delivering air and you should be able to breathe comfortably through the valve.
- Reach your entry point with your mask on and the valve open. Some fogging in the visor is possible and normal. It can be removed easily by pressing the purge button on your regulator to blow a little air over the visor.

- Before entering the water, close the SAV. Do NOT twist too hard when closing the valve. It is sufficiently closed when the regulator begins working.

3.4.4.2 Different Positions and Head-Down Position

There are six positions a diver assume

a. standing, on your feet or knees looking forward (reference position).

b. swimming, horizontal and looking downward (the mask will be softer than “a”).

c. sleeping, horizontal and looking upward (the mask will be harder than “a”).

d. r side, horizontal and looking to the right (like “a” but exhaling is easier).

e. l side, horizontal and looking to the left (like “a” but exhaling is easier .)

f. down/under, with your head down and your feet up (the mask will start to free flow spontaneously from the exhaust valve. Close the valve and use the flow adjuster until the leak stops. Adjust your breathing).

In the first exercise, begin in the standing position, move to the swimming position, and return. During this movement, use the flow knob to find the most comfortable adjustment.
Then, assume each of the six positions listed above, testing the adjustment and the regulator’s “response”. In the “down/under” position, use the regulator adjustment, your own breathing, and the exhaust valve to find a balance WITHOUT spontaneous free flow and with easy breathing.

3.4.4.3 Flooding and Clearing the Mask

a. Inhale.
b. Pull the mask away from the face by releasing the lower straps. Partially flood the mask. Then put the facial seal back in place, ensuring that it is seated well, especially along the upper edge, and gently press the regulator button. The water inside the visor will drop progressively.

c. Repeat the operation, completely flooding the mask and pressing the regulator button until the full volume is empty again. In both cases, the operation should be done slowly to clearly understand how the mechanism functions.

d. Repeat the steps “b” and “c”, trying to empty the mask only by exhaling, without pressing the regulator button.
e. Readjust the lower straps.

Further Flooding Tests

1. Try to let water into the mask by slipping your fingers under the facial seal on your forehead. The air rises, the regulator opens, and the flow of air prevents water from entering (at most just a few drops will enter).

2. Try opening the SAV underwater to see what happens, so you can recognize the problem should you forget to close the valve before the dive. You will feel a slow water leakage.

3.4.4.4 Removing and Replacing the Mask Underwater

a. Before removing the mask make sure you have an emergency octopus available.
b. Kneel on the seabed.
c. Inhale
d. Remove the mask by gripping the quick release tabs and pulling forward. Then lift the mask and slip it off your face to the right.

e. Breathe from the octopus and wait a few seconds without a mask.

f. Hold the mask by the regulator with your right hand. Then with your left hand, run your thumb inside the facial seal until you find the central connection point for the harness.

g. Release the octopus and put on the mask, pulling the straps behind the nape of your neck and checking that the center of the straps is slightly below it.

h. Keeping the mask on your face, press the regulator button to empty the mask of water.
i. Adjust and tighten the middle straps so that the mask fits comfortably on your face.
j. Finish clearing the mask (if necessary).
k. Check that the straps are flat against your head without folds.
l. Tighten the straps on the bottom of the mask.
m. Tighten the straps on the top of the mask, making sure they're not overly long (this can pull the mask too far upward, reducing comfort and seal).

It's a good idea to repeat the operation, this time clearing the mask by exhaling, without using the regulator.
With the mask removed, also try to lengthen all the straps to fully adjust each strap. For even more complete preparation, you can also practice:

- put on - clear - adjust
- put on - adjust - clear
- Also practice these exercises wearing a hood.

3.4.4.5 Switching From a Full Face Mask to a Conventional Mask and Regulator

Follow the operations above under point "e".

a. Put on the conventional mask and clear it as you were taught by your training agency.

3.4.4.6 Alternative air assistance using Octopus with a quick connection

This procedure requires the diver to have an octopus attached to a hose by a quick connection

identical to the one used on the mask. By simulating an “out of air” scenario, divers follow the standard conventional procedures, and:

1. The assisting diver removes the octopus from the quick-connect hose and signals this operation to the other diver by showing him or her the hose with the free quick coupler.

2. The diver who is running out of air inhales and removes his or her hose from the mask.

3. The assisting diver attaches his or her hose to the mask of the diver who needs air.

(Ascent procedures are the same as standard procedures).

What kind of inconveniences can occur on a dive with a Integrated mask?

Handling possible inconveniences

During a dive a number of minor inconveniences may occur, but they can easily be remedied. Let’s look at what they are and how to eliminate them.

a) Slight fogging of the visor may occur during a dive: **Press the purge button of the regulator and the additional fresh air will immediately eliminate the fog from the visor.**

b) The visor is totally fogged and pressing the purge button is not sufficient to clean it completely.
In this case the mask might not be properly fitted and the oral-nasal pocket probably doesn't provide a perfect seal for the area around the nose and the mouth, allowing warm and moist exhaled air to escape and fog the visor. When this happens it is advisable to loosen the upper harness straps slightly, let a little water in to wash the visor, re-position the mask correctly so that the oral-nasal pocket feels like it fits properly and tighten the straps after draining the mask with the regulator's purge button.

c) While swimming we notice that the regulator tends to go into free flow and we feel a slight vibration of the mask on the face.
This is a sign that air is leaking out somewhere. As we descend towards the bottom, as per a well-known law of physics, the neoprene hood of the wetsuit tends to lose some of its thickness, creating some slack in the harness adjustment. No longer adhering perfectly to the face, the mask tends to let air escape from the upper portion. This creates lower pressure within the mask and provokes free flow from the regulator. Placing a hand on the visor and pressing lightly towards the face will immediately solve the problem, which is completed by tightening the harness straps.

d) During ascent the air inside the mask expands due to the decrease in surrounding pressure and may escape from the mask into the wetsuit hood, causing slight inconvenience.
Momentarily exhaling more air than you inhale can help you maintain internal air volume despite the decreasing pressure, at levels that prevent air from escaping from the rim of the mask. In addition, raising your face towards the surface will let any air entrapped in the hood escape by itself.

What kind of problems and emergencies can occur on a dive with a Integrated mask?

Dealing with emergencies

a) Failure of a regulator attached to a Integrated mask due to blockage or free flow

1. For various reasons, it is possible that during a dive a regulator attached to a Integrated mask could go into free flow or become blocked. When this happen we normally close the regulator adjustment valve and make use of the alternative air source.
   Since we haven't used up our air, we are not in an emergency situation where we are obliged to use our diving partner's alternate air source.
2. When free flowing uncontrolled we have to take off the Integrated mask and locate either our own (configuration with two first stages) or the buddy's alternate air source and our partner has to close the tank valve feeding the Integrated mask regulator. Then we can put on the traditional mask kept in the BCD pocket and ascend to surface using our buddy's alternate air source.

b) Termination of air

1. Distractions, stress, fatigue and other factors often lead to increased consumption and ultimately to using up the air supply ahead of schedule. Being without air and far from your diving partner is anything but a pleasant experience and means that you have committed a sequence of serious errors.
2. Let's examine air termination emergency surfacing steps with the help of your buddy (Emergency surfacing with alternate air source):

    i. Give buddy the out of air signals and move closer.
    ii. Take off Integrated mask loosening the lower straps, and let it hang on the hose.
    iii. Take the alternate air source of your buddy.
    iv. Retrieve the traditional mask from the pocket of the BCD, put it on and clear it.
    v. Signal buddy to start the ascent, while maintaining contact.
    vi. Control the speed of ascent (max 18m/min).

3.4.5 Tips on Mask Maintenance

Like all diving equipment, full face masks require care and maintenance.

1. After the dive, rinse the mask with fresh water, and if possible soak it in fresh running water for a few minutes. Leave it to dry, re-mount the protective shield and place the mask back in the provided storage bag.
2. Periodically check the O-rings to be sure they are present and in good condition. Those on the two side ports are especially important. Check the movement of the exhaust valve, the flow adjustment system, the surface air valve (SAV), and the dive pre-dive. If the parts are too stiff or stuck, contact a service center and do not dive with the mask.
3. If the mask is also used by other divers, wash it thoroughly and disinfect the parts that come into contact with the nose and mouth. Check the manufacturer's recommendations for this operation.
4. Once a year, the mask should be overhauled at an authorized center to fully inspect and maintain all moving parts. If the mask features a DDR, use the internet service to check whether maintenance is required.

KNOWLEDGE DEVELOPMENT SUMMARY

We have covered:

1. The theory of diving with a Integrated mask
2. Integrated mask construction and auxiliary equipment.
3. Why use a Integrated mask for diving
4. What are the parts of a Integrated mask
5. How do you breathe underwater with a Integrated mask
6. How do you equalize wearing a Integrated mask
7. How do you defog an Integrated mask
8. How do you flood and empty a Integrated mask
9. How do you remove and replace a Integrated mask
10. The planning, organization, and procedures of Integrated mask diving.
11. How do you prepare for a dive with a Integrated mask
12. How do you enter the water
13. How do you descend on a dive with an Integrated mask
14. What is the correct head position when diving with a Integrated mask
15. How do you ascend and leave the water after a dive with a Integrated mask
16. The problems, hazards, procedures, techniques, and safety considerations of Integrated mask diving.
17. What kind of inconveniences can occur on a dive with an Integrated mask
18. What kind of problems and emergencies can occur on an dive with an Integrated mask
19. How do you properly maintain a Integrated mask

4. Confined Water Dive

This confined water dive is required of all student divers enrolling in a Diving with OCEAN REEF Integrated Mask Specialty Diver course.

4.1 Conduct

Student divers must complete this confined water dive prior to making the first Integrated mask open water dive of this course. The confined water dive provides time to eliminate potential equipment problems, allow student divers to try-out their Integrated mask, and practice basic skills. Regardless of how you conduct the confined water dive, student divers must demonstrate the following performance requirements.

4.2 Confined Water Dive Performance Requirements

By the end of the confined water dive, student divers will be able to:

Before entering the water:

- Adjust the Integrated mask straps and the equalization nose plugs for proper fit. Demonstrate how to properly put on and remove the Integrated mask.
- While wearing the Integrated mask, equalize the air pressure in the ears using the nose plugs in the Integrated mask.
- While wearing the Integrated mask, open and close the surface breathing valve.
- While wearing the Integrated mask, locate the regulator adjustment valve, fully open it and close it.
- Connect and disconnect the quick disconnect hose from the regulator in the Integrated mask.

In the water:

- Equalize pressure in ears the using nose plugs in the Integrated mask during descent.
- Demonstrate proper use of regulator adjustment valve depending on head position. x In shallow water, clear a partially flooded mask while underwater.
- In shallow water, clear a fully flooded mask while underwater.
- In shallow water, completely remove, replace and clear the mask of water while underwater.
- In shallow water, completely remove the Integrated mask, put on the spare mask and
- breathe from your alternate air source. Remove the spare mask and the alternate air source

and replace and clear the Integrated mask of water while underwater.

- In deep water, simulate an out of air emergency ascent by completely removing the full
- face mask, putting on the spare mask and swimming to the surface while breathing from the alternate air source of your buddy.

4.3 Confined Water Guidelines for the Dive

A. General Confined Water Considerations

It is highly recommended, but not required that student divers use the same type of Integrated mask, dive equipment, and accessory equipment during the confined water session they intend to use on their open water dives.

B. Integrated Mask Confined Water Dive

1. **Briefing**
   a. Dive sequence – review confined water dive tasks
2. **Predive Procedures**
   a. Evaluate student diver equipment for suitability for Integrated mask training.
   b. Assist student divers with equipment adjustments for use with Integrated mask.
3. **Confined Water Tasks**
   a. Demonstrate the ability to adjust the Integrated mask straps and the equalization nose plugs.
   b. Put on and remove the Integrated mask.
   c. Equalize the air pressure in the ears using the nose plugs in the Integrated mask.
   d. Open and close the surface breathing valve.
   e. Locate the regulator adjustment valve, fully open it and close it.
   f. Connect and disconnect the quick disconnect hose.
   g. Demonstrate proper descent and equalization technique.
   h. Adjust the regulator valve in different head positions: facing forward, down, up and sideways.
   i. Clear a partially flooded mask while underwater.
   j. Clear a fully flooded mask while underwater.
   k. Remove and replace the mask while underwater.
   l. Remove the Integrated mask, put on the spare mask and breathe from your own alternate air source and then replace it.
   m. Simulate an out of air emergency by ascending with the alternate air source of your buddy.
4. **Post-dive procedures**
5. **Debriefing**
   1. Have student divers discuss the tasks performed – what worked and what didn't work, and why.
   f) Log confined water dive (instructor signs log).

5. Open Water Dives

Student divers must complete two open water dives wearing a Integrated mask.

5.1 Conduct

In addition to the typical predive equipment familiarization exercise, dive buddies should orient themselves to the location of their partner's spear mask (BCD pocket, suit pocket or elsewhere). During the predive check, dive buddies also check Integrated mask regulator operation and seal functions before entering the water.
On the first dive, student divers work on Integrated mask skills. Divers who finish exercises with sufficient air remaining may continue to dive for pleasure and experience, at your discretion. On the second dive, student divers make practice fun dive with the Integrated mask. Bottom time on each dive should not exceed the no decompression limits of the Recreational Dive Planner or each divers computer, if used. Regardless of how you conduct the open water dives, student divers must demonstrate the following performance requirements.

5.2 Open Water Dives Performance Requirements

Open Water Dives 1 & 2

Performance Requirements
By the end of both open water dives, student divers will be able to:

- Demonstrate proper equalization and descent techniques.
- Demonstrate proper use of regulator adjustment valve depending on head position. x Clear a partially flooded mask while underwater.
- Clear a fully flooded mask while underwater.
- Completely remove, replace and clear the mask of water while underwater. (optional)
- Completely remove the Integrated mask, put on the spare mask and breathe from your alternate air source.
- Simulate an out of air emergency ascent by completely removing the Integrated mask, putting on the spare mask and swimming to the surface while breathing from the alternate air source of your buddy from a depth of 6m to 9m.
- Demonstrate proper ascent techniques.

5.3 Open Water Guidelines for Integrated Mask Dives

A. General Open Water Considerations

1. Pay particular attention to how much weight student divers use with their Integrated masks. Have student divers add an additional 1 to 2 kg weights to the usual amount of weights they are using (taking into account equipment configuration and environmental conditions).
2. It may be appropriate to provide a descent/ascent line for student divers to use if necessary to control their descent/ascent rate for equalization problems. To complete the course successfully, they should be able to descend and equalize without the line, but it may be useful as they learn and master Integrated mask equalization techniques. Choose a dive site, preferably a sandy bottom, where fragile marine life will not be damaged during skills practice for descents, ascents and other mask skills.

B. Integrated Mask Open Water Dives

Dive One

Demonstrate proper equalization and descent techniques.
Demonstrate proper use of regulator adjustment valve depending on head position.
Clear a partially flooded mask while underwater.
Clear a fully flooded mask while underwater.
Demonstrate proper ascent techniques.

a) Briefing 1. Dive sequence - review Dive One tasks
b) Predive Procedures
c) Dive One Tasks
    1. Suiting up — donning and adjusting the Integrated mask.
    2. Predive safety check — includes checking Integrated mask function and reviewing use with buddy.
    3. Controlled descent and equalization.
    4. Adjust the regulator valve in different head positions: facing forward, down, up and sideways.
    5. Clear a partially flooded mask while underwater.
    6. Clear a fully flooded mask while underwater.
    7. Controlled ascent.
d) Post-dive Procedures
e) Debriefing
    1. Student divers discuss techniques used executing their descents and equalization, flooding and clearing the mask and diving in different head positions. Guide discussions to address what worked, what didn't work, and how things may be done differently the next time.
f) Log dive (instructor signs log)

Dive Two

Demonstrate proper equalization and descent techniques.
Demonstrate proper use of regulator adjustment valve depending on headposition.
Completely remove, replace and clear the mask of water while underwater.(optional - depending on conditions)
Completely remove the Integrated mask, put on the spare mask x and breathe from your alternate air source.
Simulate an out of air emergency ascent by completely removing the Integrated mask, putting on the spare mask and swimming to the surface while breathing from the alternate air source of your buddy from a depth of 6m to 9m.
Demonstrate proper ascent techniques.

a) Briefing
    1. Dive sequence - review Dive One tasks
b) Predive Procedures
c) Dive One Tasks
    1. Suiting up — donning and adjusting the Integrated mask.
    2. Predive safety check — includes checking Integrated mask function and reviewing use with buddy.
    3. Controlled descent and equalization.
    4. Adjust the regulator valve in different head positions: facing forward, down, up and sideways.
    5. Remove and replace the mask while underwater. (optional skill)
    6. Remove the Integrated mask, put on the spare mask and breathe from your own alternate air source and then replace it.
    7. Simulate an out of air emergency by ascending with the alternate air source of your buddy.
    8. Controlled ascent.
d) Post-dive Procedures
e) Debriefing
    1. Student divers discuss techniques used executing their descents and equalization, removing and replacing Integrated masks and handling out of air situations. Guide discussions to address what worked, what didn't work, and how things may be done differently the next time.
f) Log dive (instructor signs log)

OCEANREEF®
connecting divers

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