

# DIVENWS

## 022021



**ANNUAL  
MEETING 2021**

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### The Alan Bax Award honorable mention:

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# GOLOPHON





# FROM THE CHAIRMAN

**Despite the challenges within the diving industry and with the COVID-19 pandemic, the IDSA has managed to press forward with all the help of all our members.**

Due to the COVID-19 we have to postpone our annual meeting and this annual meeting is rescheduled in September 2021 in Ireland with the Irish Sea Fisheries Board (BIM) will host the meeting.

We have seen that a lot of our diving schools went to give on-line lessons and take the best advantage of the change in this world.

By mid this year all your IDSA Qualifications Cards are printed in our office in the Netherlands. From that moment we issue the cards in a new look.

We have also refreshed our website with all the new members, and we ask you to fill in your member page on the website. If you have any problems please contact our Dutch office for help.

We would like to encourage all our members to raise your hands and help out to make the IDSA more and more worldwide spread out. For the members by the members.

This new IDSA news, has been made for the whole IDSA and his students, we thank Alan and Jill to take good care of all the IDSA news in the past, and we wish Robbert good luck with the IDSA news in the future. Please do understand that IDSA news

is not only for you and your students, but also has to be from you! So sent your stories from you but also from student, pictures etc. to our email address.

As board we would like to be more in contact with you as members and we do invite you to step forward and give us feedback.

We are hard working on (re)writing the IDSA standards and the IDSA Handbook to give more help to all our members.

Lastly, I want to encourage all of you to identify needs for you and your school, where we as IDSA organisation can be of any help.

I look forward to meet you all in person in Ireland on the 13th September 2021.

Stay healthy. Stay safe.

Your Chairman,

**Leo Lagarde**

# DIVER EDU CATION SCHOOL



Student in the 1-year vocational diving program. Photo: Tarjei Holsen



# A SCHOOL WITH 40 YEARS OF HISTORY IN TRAINING DIVERS



The Diver Education facility at Skålevik

The Diver Education School is located in Bergen, Norway and is part of the Faculty of Engineering and Business Administration at the Western Norway University of Applied Sciences. Formerly known as the Norwegian State Diving School, the school has a 40-year history in training divers.

Today the school has a strong focus on quality of education and in 2005 it replaced a course-based curriculum for commercial diving with a 1-year vocational programme with this goal in mind. In addition the school trains rescue divers for Norwegian fire brigades and rescue services, offers various courses related to underwater work and takes an active part in the development of national regulations concerning diving.

The school has a 2400 square metre facility and access to excellent underwater conditions for dive training, it employs 18 full-time employees. As a subsidiary of the Western Norway University of Applied Sciences it also cooperates with other university institutes as a participant in thesis research, mainly engineering students developing hardware and software solutions for underwater work.

The school is currently expanding its capabilities greatly, with many new dive-posts and related infrastructure having been built or being in the process of being built. A new quay has been added, a new wet-bell has been delivered from SMP, a new Nitrox dive-post has been designed and constructed, a truck-based mobile dive-post for carrying out external courses has been purchased and has been used with success, a new Haux chamber to be used on conjunction with surface decompression diving is installed and a pilot project for a diving barge is running.

In 2016 it was decided by management to undergo certification for a full membership in IDSA up to level 3 training, partly as a focus on quality and partly to support IDSA ambitions when it comes to quality of education and focus on safety in dive training. On the 12th of May 2017 IDSA auditors Leo Lagarde and Wim Gerrits arrived to carry out the IDSA-audit and subsequently approved the school for inclusion in IDSA as a full member.

As of today the school holds big hopes for the future and maintains the possibility to partake in IDSA as a full member.

Students in training.  
Photo: Tarjei Holsen



New truck-based mobile divepost and quay with SMP wetbell in the middle



The city of Bergen in Norway



IDSA chairman  
Leo Lagarde and  
Diver Education  
daily manager  
Finn Hansen  
shake hands after  
audit approval





# IDSA ANNUAL MEETING 2021

13 - 16 SEPTEMBER IN IRELAND



This year the IDSA Annual meeting will be hosted by Bord Iascaigh Mhara (BIM), the Irish Sea Food Development Agency, at the National Fisheries and Diving College in Castletownbere Co. Cork Ireland. BIM is an associate member of IDSA and has recently resumed commercial diver training activities. In support of the fishing and aquaculture industry BIM offers a range of training programmes including Skipper, Engineer, Deck hand, Fire Fighting, Sea Survival, Occupational First Aid, Passenger Boat Certificate of Proficiency and Commercial Diver training.

## Conference Dates (do not forget to block your agenda!)

The conference will run on the 13th / 16th September with delegates arriving in the hotel nearby on the 13th September.

## Location

Castletownbere is approximately 2 hours drive from Cork airport. Direct flights to Cork airport are available from a number of hubs throughout Europe, click on this link for Destinations. A minibus can collect delegates from the airport and transfer to the hotel by arrangement or delegates may wish to Rent A Car at the airport and drive independently. It is a very picturesque journey and the Beara peninsular is well known as an area of outstanding natural beauty. Cork to CTB route.



## The Historical Diving Society

[www.divingmuseum.co.uk](http://www.divingmuseum.co.uk)

[www.thehds.com](http://www.thehds.com)



So much of our future lies in understanding and valuing our past. Too much is lost, often in a single generation.

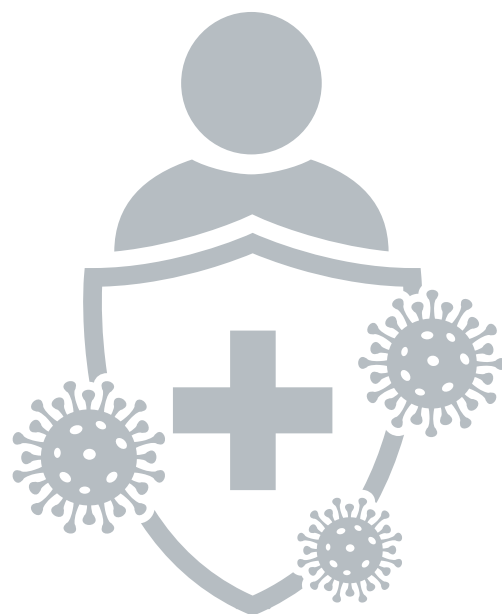
The HDS is group of diving history enthusiasts who are dedicated to promoting and preserving our diving heritage through social events such as vintage equipment rallies, book and film meetings, overseas trips and more.

Share your history with us. Join us at [thehds.com/join-us/](http://thehds.com/join-us/). You can be sure of a warm welcome.



# PREVENTING INFECTION IN SAT DIVING

By Dr Hossam A. El-Masry



**Saturation diving is a highly technical and advanced form of commercial diving utilized to perform dives at high depths. It is based on physiological principles and decompression methods which enables the commercial diver to have an almost unlimited stay at the depth. This requires the diver to be saturated at certain pressure in a diving chamber for prolonged periods.**

Infection is one of the most common medical problems that appear during saturation diving. The closed environment, temperature, humidity, hyperoxia and helium environment provides a good environment and media for microbial growth. For instance, superficial infections, especially of the external ear canal and of soft tissues following minor trauma, are very common. Consideration is given to personal hygiene, both general and specific to saturation diving and to chamber and equipment cleansing routines for environmental control. There are some methods divers should follow to prevent infection.

Divers should be free from infection before being committed to saturation which can be checked medically. Regular showers are advisable throughout saturation, at least once daily and increasing to before and after each dive lock out. Using a neutral or slightly acid soap to prevents destruction of the protective bacteria on the skin. The ears should be kept dry during showering to reduce the possibility of bacterial growth and soap remnants in the external ear readily achieved by occluding the entrance of the canal with clean gauze smeared with Vaseline.

Regular changes to clean and comfortable clothing to protect the skin. Lock-out of used clothes and toweling should not be

delayed. Such items should be laundered at a high temperature. Changing of bedding should be regularly. No sharing of razor, toothbrush, comb or towel. Wounds should be regularly cleaned and covered. Waste materials used in cleaning and dressing should be put into sealed plastic container for early lock-out. Nails should be cut at right angles to fingers and toes. Shaving should be avoided or limited if the skin of the beard area is irritated. Dental care is very important, Brushing of all surfaces of teeth at least twice a day.

Divers should use their personal diving equipment, it is not practicable to personalize diving helmets, and all that can be done between dives is a wipe and rinse carefully using disinfectants. Some parts like oro-nasal mask and nose block pads are significant potential source of infection, they have to be removed from the helmet after each bell run and surfaced.

Care should be taken with items which will be in close contact with the diver's skin to ensure that any cleanser is washed off adequately before re-use because it may irritate the skin. Moreover, prophylactic ear drops containing acetic acid and aluminum acetate minimize the chance of infection by maintaining the external ear canal PH acidic. The drops should be used twice daily and following each dive or shower. One bottle for each ear is strongly recommended.

Divers in saturation should always be aware of maintaining high hygiene levels. They also need to minimize the risk of infections by following medical recommendations. Taking necessary precautions is a must to ensure their health and safety.

**Dr Hossam A. El-Masry**

CEO Middle East for Commercial Diving MECD



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# CURRENT PROBLEMS VIRTUAL SOLUTIONS

BY KB ASSOCIATES

## KB Associates provides Industry Solutions - Remote Auditing and Subject Matter Experts (Diving/Safety/ROV).

Over the recent months and challenging business and operational climate, where problems are continuously faced by the offshore marine and diving industry, KB Associates quickly adapted to provide 'solutions' to support our clients across Asia and those based in Australia, UK, UAE, Azerbaijan and Africa for their diving, ROV and equipment compliance audits. This was achieved by various modes of technology and in implementing a remote auditing protocol that includes training personnel who are permanent employees of the contractor companies to support the remote auditor. KBA's "Remote Auditing Guideline" document assists our clients to establish the technology systems, the process and requirements to be put in place to ensure that there is enhanced auditing capabilities and a robust methodology. In using various available technologies for communications, enables the best possible results - a balance of review of certification packages and photographic evidence via email, and remote onsite live streaming video is established in-lieu of the physical presence of the Auditor being onsite.

Additionally, KBA's remote support and solutions have been expanded to provide Subject Matter Experts in diving, safety, ROV and technical authority (TA) requirements with oil and gas organisations. Once again enabling clients to gain access to competent diving, safety and ROV personnel for their project management and support needs.

This remote auditing solution for conducting IMCA Diving and ROV system audits enables contractors and clients to continue with their corporate safety and contractual requirements and milestones, continue with project scope with the assurance that the systems have been checked against the industry standards and guideline requirements.

KBA have a ready pool of experienced Diving and ROV auditors and Diving / ROV / Safety Subject Matter Experts in various countries, Thailand, Malaysia, Singapore, UK, USA, Spain, France, Nigeria, South Africa Australia and New Zealand, who are able to conduct onsite audits and can be mobilised for remote audits or TA / SME support as our client's needs dictate or where travel restrictions prevail.



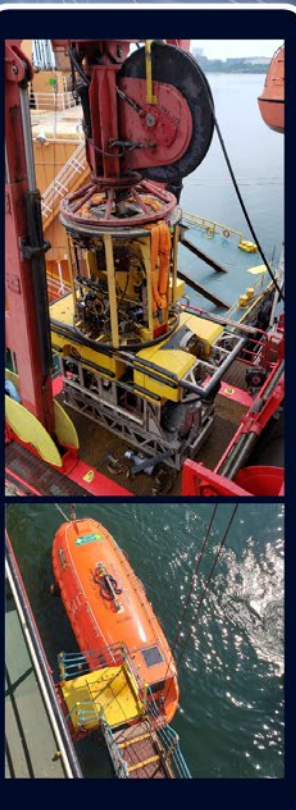
This remote solution for auditing and subject matter expert support for conducting IMCA Diving and ROV system audits and project requirements enables contractors and clients to continue with their corporate safety and contractual requirements and milestones, continue with project scope with the assurance that the systems, procedures and processes have been checked against the industry standards and guideline requirements, and limit downtime due to travel restrictions and access to work sites for personnel.

For project support requirements or training needs please contact us [enquiries@kbassociates.org](mailto:enquiries@kbassociates.org)

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## KBA REMOTE AUDITING



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## KBA TRAINING LAUNCHES INSTRUCTOR-LED VIRTUAL LEARNING

**Training Provider, KBA Training Centre Pte Ltd (KBAT), launched its Virtual Training Studio in Singapore in August 2020.**

Established in 2006, KBAT has been in the forefront in providing training for the offshore, inland/inshore commercial diving and the health and safety sector across a broad range of industries. On 3 August 2020, KBAT launched its first five-days instructor-led Virtual Training course from its dedicated training studio in Singapore. After months of preparation and discussions with training partners, setting up of the network and supporting technology, training of the trainers and support teams to realign to a new mode of training delivery, the studio's inaugural training commenced with the International Marine Contractors Association (IMCA) Trainee Air Diving Supervisor's course.

Despite the time difference, KBAT welcomed delegates from Australia, Barbados, Brunei, India, Saudi Arabia, Thailand, UAE and USA to the course. Many of our delegates had been in search of courses to upgrade their skills during the current lockdown period, specifically for commercial diving related courses.

As the outlook of the global pandemic appeared indefinite with the limitations of 'green lanes' between countries, KBAT provided the offshore sector with another solution with the launch of our 'live' instructor-led theory lessons via virtual learning for IMCA Diver Medic Technician Refresher course via blended learning for Diver Medic Technicians. Upon completion of the theory lessons which comprises of practical life support technique demonstrations shown 'live', trainees contact a KBAT approved practical and assessment centre in their country of choice to complete their hands-on practical refresher training and assessment before a renewal certificate is issued by KBAT. KBA Training has established a solution that has now reached many regions.



KBAT's instructor-led virtual classes are conducted, similarly to our face-to-face courses. Course books are dispatched to attendees prior to the commencement of a course and made available electronically. Lessons are conducted in real time by an instructor, examples are shared on the whiteboard, and peer-to-peer discussions are conducted similar to a face-to-face lesson. Delegates have found the new norm of conducting lessons virtually, extremely beneficial giving them the ability to be at home with their families, savings in costs for flights and hotel accommodation, the elimination of travel time, and most crucially, the risks of exposure during the current pandemic.

Other courses are now available via KBAT's 'live' instructor-led virtual learning including the IMCA Assistant Life Support Technician, NEBOSH and IOSH courses, and competency development courses such as the Client Worksite Representative course as a public run schedule and/or as a Bespoke course for corporate organisations.

For further information, please contact KBA Training at Tel: **+65 6542 4984**, email us at **courses@kbatraining.org** or visit our website **www.kbatraining.org**

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## VIRTUAL DMT REFRESHER COURSE



We now have many more locations approved for DMTR practical training and assessments.





# THE BADGE

How did you get involved with diving? What are your ambitions? What annoys you the most? In The Badge we talk to people from the Professional diving world and find out who they really are and what drives them. In this month's issue we meet Carmen Pérez from Spain who is the Executive Director at Océanos commercial diving school in Barcelona.



## 01 How did you get involved with the Professional diving world?

My first contact with the world of diving was through a contractor in Spain who was preparing a general audit and who needed collaborators at the management level to make a study and record of the total number of dives that the company had made in recent years. So I fully entered the underwater world from the administrative point of view.

Today the diving sector is not only the time that a diver spends underwater developing a job. To get to that point there is considerable preliminary work at the documentary level and later the post-dive analysis and management are also relevant. Especially with preventive and corrective safety measures in professional diving.

## 02 Who did you learn the most from?

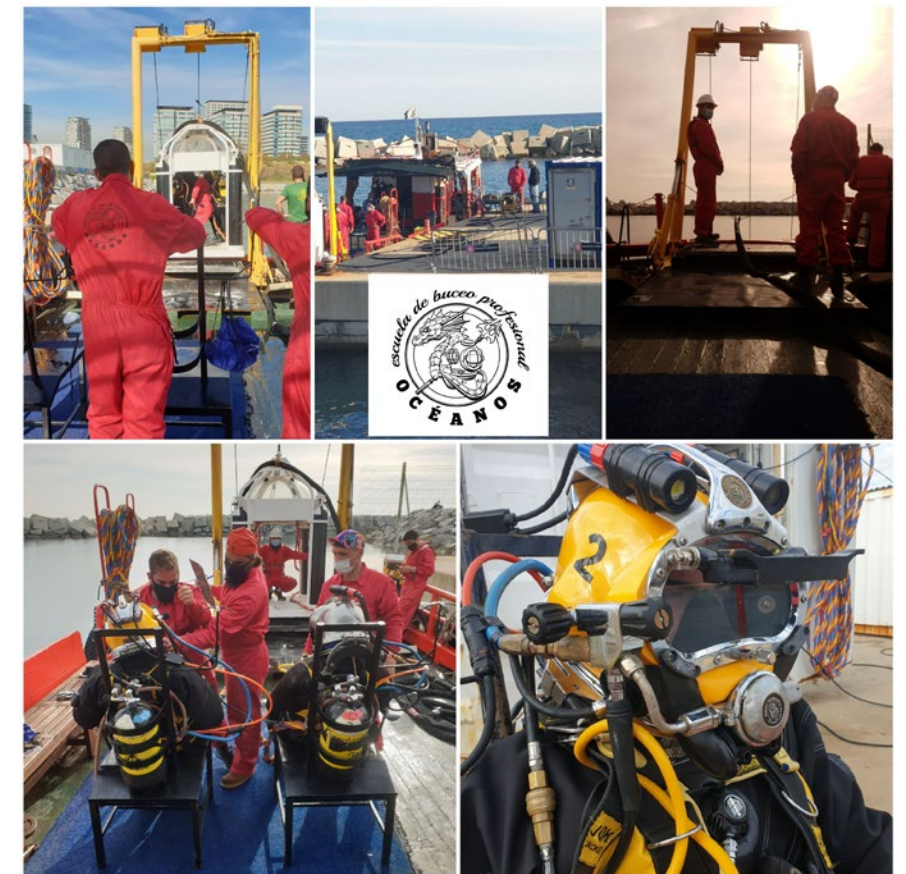
During all this professional time, the

main source of learning has been Javier Ferran, currently CEO of Océanos, commercial diving school, but he has also worked previously as a professional diver, instructor and CEO of the first and only Spanish company that has developed saturation work in Spanish territory. His professional vision, is not only focused on the current project of the company, but also being open to new projects and new goals, always related to diving safety.

Of course I also have to thank other people related to the diving industry who have put their knowledge and other points of view at my disposal. Over time you discover that in this sector not everything happens underwater.

## 03 What are your drives and ambitions?

I am a person who likes new challenges and complex work. So that's my main motivation. In Spain,



professional diving has not been a good reference in the past. However the procedures and work standards have improved a lot.

I have the opinion that the training of new workers and continuous learning is essential for the sector to move forward and imprint a new mentality in active diving professionals. My ambition follows that line. Implement quality, safe professional diving training and, if possible, unifying standards and procedures in terms of capabilities so that divers can practice under equal conditions throughout the world.

## 04 What annoys you the most?

That professionals of the sector believe that they do not need to renew or update their knowledge and skills. The world is changing, the diving sector is not excluded and must adapt.

Technology in its different aspects is on our side to use it. Part of it helps us streamline procedures and keep records that are later useful for new jobs. Another part provides security in daily activity. Having good equipment and regularly maintaining it seems expensive, but in the long term it provides safety and efficiency for companies and divers.

## 05 What is your life moto?

Enthusiasm in life is the most important thing. We should all project enthusiasm in personal life and of course in work life. Facing problems helps find solutions, so why not? I suggest applying that attitude in the diving industry to improve quality and safety of underwater works.

WE SHOULD ALL PROJECT ENTHUSIASM IN PERSONAL AND WORK LIFE



# SANDY ROBERTSON SALVAGE DIVER

By Nick Baker, an interview carried out in 1991

Scapa Flow today represents one of the world's greatest wreck diving venues, with numerous vessels among them are those ships which once formed part of the German Imperial High Seas Fleet, scuttled on midsummers day 1919. Each year thousands of divers visit them, marvelling at their sheer size and majesty, enhanced rather than diminished by their final resting place. However, only a fraction of the ships actually sunk remain at Scapa. Most were salvaged in a huge operation mounted during the 20's and 30's, principally by the firms of Cox and Danks and later Metal Industries. Sandy Robertson played a significant part in this work.

Sandy lives in a cottage overlooking Ore Bay on the island of Hoy, close to the old Lyness base where so much salvage activity took place during the inter-war years. He welcomed us in to his home with typical Orcadian friendliness after only the briefest introduction from dive-boat skipper John Thornton.

I asked Sandy how he became involved with salvage and he told me of his first job with Cox and Danks as a 'Dingy Waller'. This entailed maintaining machines at work aboard them. As a native Orcadian the teenage Sandy was well qualified for this task, and his ability to handle a boat and tie knots soon saw him 'upgraded' to a diver's linesman, the first step in a salvage diving career.

Sandy remarked that not everyone seeking work at the Flow was as lucky as he. The salvage operation acted as a magnet for hundreds of unemployed hopefuls who flocked from the depression-struck mainland seeking employment, only to discover that once in Orkney things were not so easy. Cox controlled everything, and with all the arrogance of a ruthless employer dealing with men on hard times, kept wages low and conditions pitiful by every means at his disposal.

Things got better when Metal Industries took over, with improvements in practices and wages. But the memory of the Wolverhampton metal merchant lingered bitterly. "You have to remember", Sandy told us, "that Cox was a scrap metal man, and everything he bought was just that - scrap - even the diving gear". I asked him what sort it was and Sandy laughingly told me "second hand!".

However, before Sandy did any diving, he first had to serve an 'apprenticeship' as a linesman. It must be remembered that there was no recognised training scheme as such. Quite simply the more skilled a man became at any task the better his status, wages, and job security, and a talented lad such as Sandy took care to learn as he worked and progress to higher levels of accomplishment in whatever task was at hand.

After five years as a linesman he was thoroughly familiar with the diver's job. At least topsides, and it was then a relatively simple progression to underwater work. The established divers arranged for suitable candidates to take a 'dip' during the quieter moments. Not all of them took to it. Sandy told us that 'the claustrophobia' put many men off, but that he personally 'got on fine'. Sandy regarded himself as one of a second generation of Scapa divers, following in the footsteps of the pioneers who had salvaged dozens of destroyers from shallow water in the early days.

He spoke somewhat disparagingly of ex-naval divers who sought work at the Flow, pointing out that Royal Navy practices, with men under constant orders and diving by 'the book', differed immensely from the work expected of them in Orkney. The Scapa scrapmen had no such luxuries as stand-by divers or instructions from above. At the Flow money was the driving force, and as man power cost

money a diver was expected to do everything alone and on his own initiative.

Sandy told us about fixing tubular air lock sections in place on upturned battleships and battlecruisers, down which men would eventually clamber to work inside the hulls in order to make them watertight for lifting.

A series of eye bolts would be inserted at predetermined points onto which wires were fixed as the lock sections built up. It was a point of honour not to cross the wires, although any mistakes would only be visible when the vessel came to the surface several months later.

Sandy spoke of the dodges the divers developed as work progressed. For example, the fixing of wooden guards on pneumatic tools so that a slip did not result in battered fingers. When on the subject of fingers he mentioned his hands looking like 'half a pound of sausages' after a long stint underwater. The divers worked shifts, two dips a day varying from two and a half to three and a half hours depending on depth.

Sandy also worked inside the ships, going down the airlocks he had helped put in place. He chuckled at the memory of men 'outgoing' having to squeeze past those 'ingoing', thus ensuring that even compressed air was not wasted!

I asked Sandy about the gear used underwater. This was a mixture of all styles, although principally Siebe Gorman six and twelve bolts. Again, he spoke derisively of Cox, remarking that the scrapman would have had them go down in German diving equipment they had recovered from the wrecks if it had been at all possible! He also had another little swipe at the Navy, calling the Admiralty pattern six bolt helmet 'clumsy' in comparison to the twelve bolt.

I asked him about air supplies and he

told me that hand pumps were available for emergency use only, with powered compressors "much preferred".

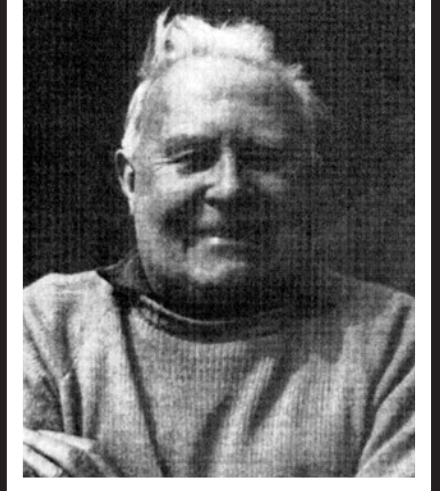
Regarding communications Sandy told me that signal lines were almost exclusively used. Comms. were available, 'the old telephone type', but these rapidly deteriorated in the conditions on and around the salvage vessels. They were not worth the bother of keeping in working order, and Sandy and his fellow divers relied on signals and well-trained, trustworthy, linesmen.

Besides working underwater as a diver and inside the ships, Sandy undertook a variety of surface jobs. He told me about the several momentous occasions when he took station atop one of the airlock towers when a ship was being raised. During an exhilarating thirty seconds he and other men standing in similar positions were projected the length of the towers into the air, or eighty feet! I asked him why? Sandy replied "in case something went wrong". I remarked that if something had 'gone wrong' then the top of an airlock tower would have been my first choice of position, but Sandy pointed out that the stations were necessary so that the trim of the vessel could be adjusted as she broke surface. We laughed at the thought that his work at Scapa had included both underwater and aerial activity.

A raised ship resulted, at least in the latter days of Metal Industries, in a celebration dinner paid for by the firm. Sandy showed me two of the invitations still in his possession. A raised ship also resulted in a bonus - two weeks wages for the average worker, with up to £100 for divers - a considerable sum in the late 1930's.

Sandy also accompanied the vessels on their final voyages to Rosyth. Huts were built aboard for accommodation and pumps and pumps and compressors run to keep them afloat, whilst constant attention to towing lines was also required.

Sandy showed me some photographs, including one of a group of workers aboard the upturned hull of the Derfflinger.



Sandy Robertson, a sprightly 82

A DIVER WAS EXPECTED TO DO EVERYTHING ALONE AND ON HIS OWN INITIATIVE



I asked him if he was on it. "No, but can remember standing to one side shouting "you would all look a lot better if you turned round the other way!". His photograph did however appear in a feature in Illustrated magazine, a copy of which he keeps amongst his other souvenirs. Sandy can be seen inside one of the upturned, slime filled ships crouching amidst a pile of wine bottles, "I was just posing you understand".

The magazine was published on September 9th 1939 a week after the outbreak of war. By this time salvage work had abruptly ceased with Sandy and the rest of Metal Industries men and material being absorbed into a hastily formed Admiralty Salvage Section. Sandy remarked that the firm, never an organisation to waste opportunities, rapidly 'absorbed' all naval diving equipment in the area and never gave it back!

During the war Sandy was kept extremely busy diving, amongst other things, on the Royal Oak sunk with great loss of life in November 1939.

After the war, the salvage focus moved away from Scapa, with firms such as Metal Industries moving on to the rich pickings provided by war casualties. Although there was one last task, that of patching up and moving out the Derfflinger for scrapping at Rosyth. She had been raised in 1939 and had spent the duration floating up-side-down in the shallows. Sandy proffered an observation guaranteed

sober the thoughts of present day Scapa sport diving enthusiasts. "If it hadn't been for the war we would have raised the lot", he said with absolute conviction.

He then spoke of the post war salvage attempts 'minuscule' in comparison to those of Cox and Danks and M I. He laughed at the efforts of a group of Americans who had grand plans to salvage the

Bayern's turrets, still embedded in the seabed after parting company with the rest of the vessel during earlier work. Seeking out Sandy as a local with 'knowledge' his opinion had been asked. He asked them which of the four turrets they had seen. They didn't know. Sandy asked if they knew which way they had been facing. They hadn't a clue. The Americans went home and the Bayern's turrets are still in place 35 metres down. "Although if we had wanted to we could have easily brought them into shallow water and blown them up", Sandy remarked. Sandy began asking us about our own 12 bolt dress. "Do you use a horsehair collar?". We told him we did not. "Yes, that's right, they're not necessary, if we needed padding we used a couple of old socks - but padding isn't necessary if you get the flow of air right." He reached in an unconscious action behind his head to demonstrate controlling the outlet valve.

I remarked that such control enabled a man to do heavy work underwater in a way not possible using SCUBA - swinging a sledge-hammer for example. Sandy agreed although he exhorted me to "remember that your best hammers are on your feet!".

In a further denigration of the aqualung Sandy added that in his opinion decompression problems were rarely encountered in Standard at Scapa because they always had a good supply of air. "Plenty of oxygen, that's what you need - and plenty of hard work - when your fixing two 3-inch hawsers together with a hundredweight shackle, that's work!". He unconsciously demonstrated the task, all four limbs in action at once.

It was time for us to leave, and I shook hands with one of the great old divers of the past. A man with a ready smile and an infectious laugh who lives in a cosy cottage overlooking the scene of the greatest salvage triumph of all time. A triumph in which Sandy Robertson had a hand - or rather both hands and two very active lead soled feet!

Reprinted from The Historical Diving Times, No.8, summer 1992

**REMEMBER  
THAT YOUR BEST  
HAMMERS ARE  
ON YOUR FEET!**



Sandy in 1939, in the Derfflinger's wine cellar



## IHC Hytech We keep you breathing



Decompression chambers



Diving panels



Personal gear

For more than three decades IHC Hytech is specialised in designing and manufacturing high-end commercial and military diving equipment. Every product that IHC Hytech makes or sells is supported by an extensive quality control and after-sales service. IHC Hytech is formed by a group of people, who have a wealth of experience in every area of commercial diving and are presenting a new perspective on many aspects in this field.

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**The technology innovator.**



# IHC HYTECH

## YOUR RELIABLE PARTNER FOR HYPERBARIC & DIVING SYSTEMS



For more than three decades ago IHC Hytech was formed by a group of people with a wealth of experience in every area of commercial diving. IHC Hytech always presents new perspectives on many aspects in this ongoing developing industry.

IHC Hytech strives to deliver the best value to its customers and is therefore a valuable partner of choice for innovative, sustainable and integrated hyperbaric systems and diving equipment. IHC Hytech's solutions are reliable, efficient and flexible to the demands of challenging surface-supplied diving projects. With its extensive knowledge and in-house design capabilities, IHC Hytech ensures compliance with the latest technological developments, strictest safety regulations and most stringent environmental standards.

The company's strapline – "we keep you breathing" – underlines the focus of IHC Hytech.

### Reliable

IHC Hytech excels at managing the complexity inherent within the development of hyperbaric systems and diving equipment. Each project is approached with care, creativity and adaptability, so that customers can depend on delivery within the terms of the agreement.

IHC Hytech is Royal IHC's in-house specialist in high-quality diving systems and equipment. With a broad customer base that includes various navies, governmental organizations, salvage companies and inshore/offshore diving contractors

(both domestic and international), it has extensive experience in designing and manufacturing safe and reliable diving equipment. Royal IHC is also able to integrate diving systems from every reputable supplier.

### Partnership

Specific demands require bespoke designs. IHC Hytech provides cost-effective products, not only when newly acquired, but also throughout their working lives. The IHC Hytech team works closely with the customer and becomes an extension of their organization, so that both parties can complement each other's expertise. It can, for example, advise on the design, regulations and structure of the project. This reduces risk and cost to create a smoother process, which leads to better end results.

### Efficient solutions

IHC Hytech constructs custom-built systems and equipment to meet customer-specific requirements, as well as standard systems with a ready-to-build design.

Conducting business in an offshore or inshore environment is often turbulent. Technical and financial risks are significant, and margins are constantly fluctuating. The difference between profit and loss for an owner or operator of technological diving systems is greatly influenced by the productivity of these long-term investments. Efficiency, reliability, durability and safety are key factors to success. IHC Hytech understands its customers' needs and has the ability to provide innovative and efficient solutions for a variety of surface-supplied diving projects.

### New Designed Products

IHC Hytech is working for the new generation of diver with a lot of logging possibilities. See below two new designed and already manufactured products which we would like to introduce into the diving market.



### DIGITAL CHAMBER MONITORING CONTROL

The Digital Chamber Monitoring Control is designed for monitoring and controlling air deck decompression chambers. This innovative and clearly arranged control panel allows for simple and convenient operation.

#### Features

- Innovative control panel for intuitive operation
- Accurate monitoring of depth, supply pressures, flush rate, temperature, oxygen and carbon dioxide levels
- Control of lighting, heater and countdown timers
- Efficient flush rate calculation
- Equipped with UPS to ensure operational reliability
- Audible and optical alarms (adjustable)
- Real time logging function

#### Specifications

Dimensions WxH: 154x86 mm

Screen diagonal: 7"

Design of display: TFT widescreen display, LED backlighting

Operation: Keys and touch

Number of functionkeys: 8

### MOBILE DIVING UNIT

The Mobile Diving Unit (MDU) is an unique high quality and easy transportable breathing system for 1 or 2 divers. The MDU is often used by fire-brigades and small rapid response teams. The compact design and short start-up time contributes to a quick response time.

#### Features

- Digital diver read out system with logging function
- Equipped with internal battery and external charger
- Read out diver depth and pressure bail-out cylinder on the surface
- Easy to change a cylinder during the dive

#### Specifications

Dimensions LxWxH: 490x590x1360 mm

Weight: 70 kg (with cylinders and umbilical)

Diving depth: max. 18 m (for this version, other depth on request)

Working pressure: max. 12 bar

Working pressure HP cylinders: max. 300 bar

Primary and back-up supply for 2 divers

IHC Hytech DC002-4 communicator





# IDSA PEOPLE: DAG WROLDSEN

In the tiny village of Fagerstrand in the Oslo Fjord, just outside Norway's capital, a world leading commercial diver training center celebrates its 30th year in operation. NYD Subsea Training Centre is now the largest dive school in Northern Europe. At the helm is former offshore diver and long-time IDSA board member Dag Wroldsen.

What began in 1989 as a small privately-owned alternative to the state-run school already in operation at the time, is today producing 90% of the commercial divers in Scandinavia.

"Many were skeptical to begin with, but we have built brick by brick and have gradually expanded and evolved our operations. Today our name is recognized as a quality provider of training services to the global industry," owner Dag Wroldsen states proudly.

## Never stay still

Wroldsen has managed NYD for 30 years, but still he looks ahead. Towards new dive methods, new technology, smarter ways of training, and ways of streamlining NYD's operations.

"We must never ever stay still. The world is evolving and so must we. Sometimes we can even drive development ourselves by daring to think differently and challenging established truths. We're not afraid to do that at NYD," laughs Wroldsen.



Dag Wroldsen accepting the Alan Bax award at NYD

A dynamically positioned, semi-submersible diving platform is proof enough: NYD does things differently.

## IDSA Supporter

Dag is a self-proclaimed IDSA fan. Having served on the association's executive board for more than a decade he is a strong believer in internationalization. He is also an eager advocate for raising the standards for diver training worldwide.

"IDSA is important for many reasons. Mainly for showing governments and organisations around the world that there is a comprehensive framework for how to conduct safe, high quality diver training," Wroldsen says.

NYD hosted this year's annual meeting of IDSA. During the meeting Wroldsen was caught off guard when chairman Leo Lagarde presented him with the association's highest honour, the Alan Bax award. Wroldsen received his accolade for having served the IDSA board with distinction for 17 years. Proud and uncharacteristically humble, Wroldsen thanked IDSA for the award and reaffirmed his dedication to the association's work.

## Long career

Dag Wroldsen started his diving career in the mid 70's and was a regular on a variety of diving jobs on the offshore

installations in the North Sea by the early 80's, such as Frigg, Ekofisk and Cod for diving companies Stolt-Nielsen Seaway, Comex and Subsea International.

In 1982-1983 he was deployed as a diver to salvage the capsized platform Alexander L. Kielland, after an accident costing 123 people their lives in 1980. Dag conducted more than 100 dives during this complex operation.

"This was a massive operation, at a scale unsurpassed even today. It was challenging and required a lot from us divers. The fact that 123 people lost their lives and that bodies were still found during the salvage made a lasting impression," Wroldsen says.

**WE MUST NEVER  
EVER STAY STILL  
THE WORLD IS  
EVOLVING AND  
SO MUST WE**

In 1986 he qualified as a closed bell saturation diver, and earned his supervisor certification shortly after. When health issues caused him his medical certificate Dag went onshore. At first he ran recreational diving courses and a dive shop in his hometown of Sandefjord. When opportunity presented itself, he decided to invest and establish NYD in 1989, and 30 years later that decision has proven to be a successful one.

"I am very proud of all that we have achieved with NYD. However, the work is not finished. We can always improve, but the foundation is in place for a bright future," Wroldsen finishes.

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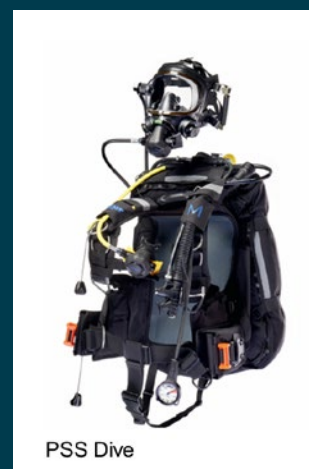
**COMMERCIAL DIVING SERVICES - MIDDLE EAST/INDIA**



# MOBILE DIVING UNIT MDU 5000

## Modular

In order to increase the availability and safety, we will soon be able to offer you the option of expanding the trusted PSS-Dive system with a Mobile Diving Unit, or the MDU 5000 for short.



PSS Dive

The basic idea is that the diver can carry out his or her work below the surface while breathing air is continuously supplied from the surface. We know that this method gives a safe feeling of diving.

This can be compared with the well-known SSE diving.

## Control on the surface

### Depth and bailout pressure

It is important that the diver's team at the surface can see exactly how deep the diver is, how long the dive has been going on, and, not least, that they can monitor whether the bail-out cylinder is being used accidentally. For this purpose, we have added an additional high-pressure sensor and a depth gauge to

the umbilical on the Dräger Dive Set. Should the umbilical be clamped extremely tight, for example, this could happen.

### Umbilical air supply pressure

When carrying out an operation such as this, there is always stress and a lot of cables and hoses running through the deployment area, the chance of someone driving or walking over the umbilical and damaging it is always present. But also under water, if an umbilical would break, we want safety. For this reason, the system works with a reduced pressure in the umbilical to the diver, max. 15 bar.

This limits the risks both above and under water. The energy released by the rupture of a medium pressure umbilical is enormously less than that of a high pressure hose. Connecting hoses with a medium pressure umbilical is also safer and easier. The last advantage over a high-pressure hose is that when a high-pressure hose is filled, you can immediately start the logistics of supplying new cylinders because the pressure drops enormously and it is almost time to change cylinders again; some team members have to perform this task immediately.

When using MDU 5000, you can first have the diver in the water and keep calm in the initial phase of the deployment.



Bail-out sensor



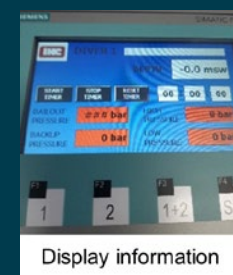
MDU 5000

## What's in MDU?

The unit consists of a mobile transport trolley on which the entire system is mounted. This can be transported in the current diving trucks used for emergency services. Mobile due to the two pneumatic tires.

On the transport trolley there are:

- Place for 4 breathing air cylinders of max 6.8 liters 300 bar divided into 2 sets of 2 pieces.
- A umbilical 50 meter standard for the air and communication and the sensors for depth determination. Mounted close to the diver in action.
- A case with a digital readout of dive depth and time.
- It also records the bail-out pressure of diver 1 and pressure stock cylinder pack 1 and 2.
- Pressure regulator for reducing the high-pressure air to the working pressure in the system.
- Standard cylinders from the fire brigade can be used for this, these are not included in the scope of supply.
- It is possible to connect a communication set, your current set can be used.
- System is prepared for two divers.
- Exceptionally long standby time for batteries during storage.



Display information

- All data are stored and can be read from the display unit.
- Easy to handle and the working principle is similar like Easy to use and operates in the same way as the breathing air systems for the living air line of, for example, a gas-suit.

## Connection MDU and PSS Dive

The connection between the Diver and the air supply is with the umbilical end with a hook it will be connected to the Harness of the PSS-Dive carrying system, and air will be directly connected to the medium pressure (Walter Pession coupling). One cable will be there to get your communication with the diver and the second will be there to connect the bail out cylinder sensor.

The sensor will be on the back of the diver mounted on the backplate of the carrying system of the PSS-Dive.

## Safety

The whole idea is that when you are used to dive with a open scuba set like this you can get the advantage of a surface supply diving system.

Of course the EN250 approved pressure warning device of Dräger can be used in combination with the MDU 5000. On this way there is always a warning in the proven Panoram Dive to the diver with can be heard over the communication with the diver

Beware of the local regulation about surface supply diving and training regulation.

We will make the official introduction of the set as it seems now on the end of this Q1 2021 or just before.

## Peter van Buuren

Product manager  
Dräger Netherlands  
Safety Division



# RATIONALIZE THE FIELD OF DECOMPRESSION WITH AZOTH SYSTEMS

## A bit of history

Located in the Maritime Development Center in Toulon (France), close to the leading naval defence and aerospace companies, Azoth Systems brings innovation to underwater diving.

Azoth Systems was founded in 2008 by Axel Barbaud, a former navy officer in charge of diving safety for the French armed forces. The idea behind the company came from the observation of undeserved decompression sickness hits (DCS) in divers despite compliance with regulatory decompression procedures.

Around this time, available research results were starting to show that Doppler-detected circulating bubbles (venous gas embolisms) after diving may serve the evaluation of the “decompression stress” generated by decompression

While the presence of these microbubbles does not imply the occurrence of DCS, the higher quantities of bubbles are associated with an increased risk and their absence is a good indication of safety.



*Azoth Systems Precordial Doppler prototype in 2013 & Tests during the NATO Submarine Rescue System decompression table validation*

Axel Barbaud gathered a team of engineers, physiologists and medical doctors with experience in the area of decompression table engineering as well as laboratories specializing in signal processing to develop the activities of Azoth Systems along the following three axes.

The first was the expertise in de-compression tables based on data collection and analysis of dive profiles accompanied with microbubble measurements by Azoth Systems specialists. Cal Dive International (Houston, Texas) and TOTAL have been the promoters of a study on various worksites in that field with the BORA program (Bubble Occurrence & Risk Attrition).

The second axis was a characterization of DCS risk based on the analysis of dive parameters, DCS cases and bubble monitoring databases including to infer statistical rules. Through commercial diving activities and partnerships with military research teams such as the Defence Research and Development Canada of Toronto or the French Navy, Azoth Systems has been able to build and extend its own extensive database and to develop and calibrate DCS risk predictive models.

The third axis consisted of monitoring the quality of decompression procedures used on worksites based on on-site microbubbles detection. This drove to the development of an unprecedented Doppler technology. Initially the technology needed the participation of Azoth Systems engineers, but has been progressively enhanced, now allowing divers to make easy self-recordings of signals after their own dives.



*Subclavian Doppler sensor assisted with software for a self-monitoring by divers themselves*



This is the quintessence of these 10 years of research that converged into the O'Dive PRO technology. This system opens numerous opportunities to enhance safety. The first one is to rationalize decompression procedures by monitoring their effects

(microbubbles) on the worksite: most of decompression procedures have been designed and verified in hyperbaric facilities; real world conditions are not the same, changing drastically from dive to dive and from one place to another.

## A Help-Decision Tool to Enhance Safety

O-Dive PRO is a patented innovation that enables the analysis of the quality of decompression procedures by considering two indicators for which a link to the DCS risk has been shown: the dive profile (depth, bottom time duration, decompression stops and breathing gases) and the quantity of bubbles detected in the diver's bloodflow after the dive.

O-Dive includes a vascular microbubble sensor (ultrasonic Doppler technology) connected to a tablet and an analysis server and an information reporting site.

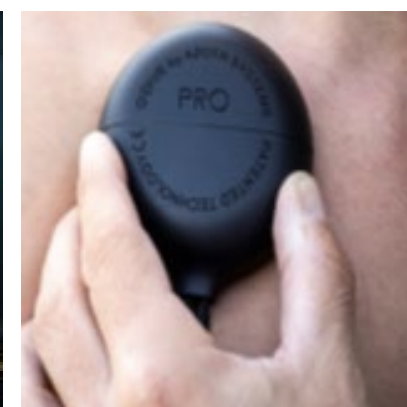
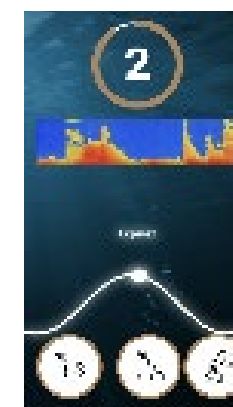
## How does it work?

After surfacing, the diver places the sensor under his left then right clavicle for around for 20 seconds to record the signals with a visual feedback showing the correct positioning of the sensor (red-orange signal on blue background). The signals are automatically recorded on the tablet and exposure parameters are input manually or digitally imported.

The whole operation is completed autonomously by the divers themselves in just a few minutes without requiring any additional support. The system is provided in a kit including the necessary sets to lead the recordings in full autonomy.

Azoth Systems provides complete training on how to use the system which can usually be completed over the course of half a day by.

**AzOth**  
SYSTEMS



## Ecole Nationale des Scaphandriers

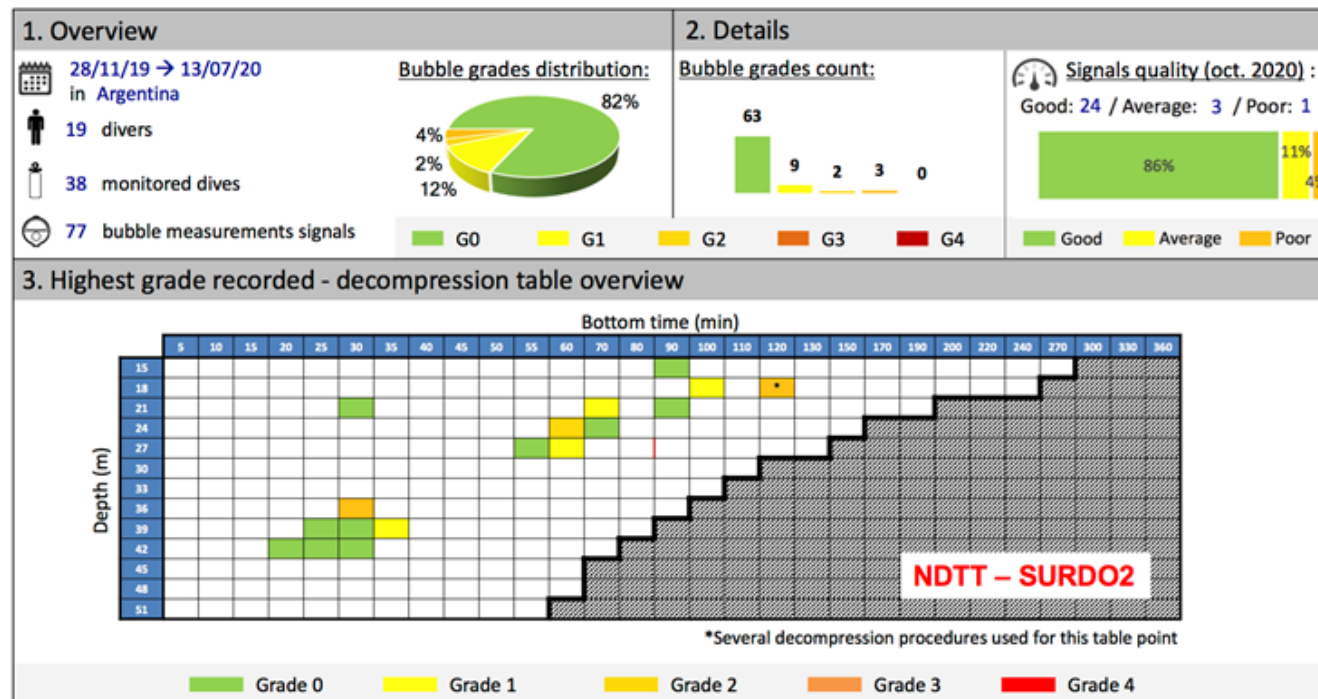
O'Dive technology is also offering an educational app, raising awareness to the fact that decompression microbubbles are not just a part of theory but can be easily heard in the vascular bloodflow in numerous cases after the dive.

Since 2020, the French national school “Ecole Nationale des Scaphandriers” has been using O'Dive Pro system and implement in their teachings accordingly.



*CEO and Director of ENS delivering O'Dive PRO instruction*





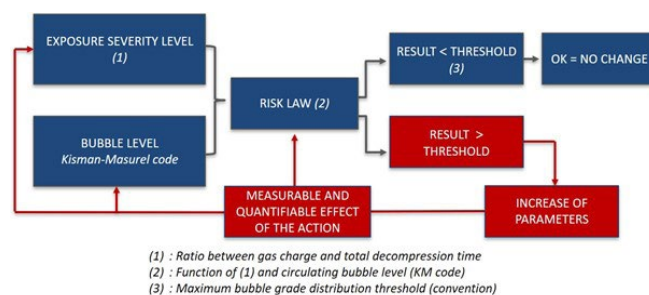
20/01/2021

Report issued by Mohn Drilling - Tierra del Fuego worksite 2020

## Control & Supervise the Quality of Worksite Decompression Procedures

A digital synthesis reporting quantities of bubbles measured (Kisman-Masurel code) on each table point is updated accordingly.

The statistical value of bubble levels is representative of physiological stress level specific to each table point.



### Help-decision principle of action and control

## What benefit can be taken from this report?

For the company, it is first interesting to know if the divers are systematically exposed to high levels of microbubbles implying that decompression procedures are probably not sufficient with respect to the underwater effort they have to perform on the worksite.

Many are familiar with the empirical (or Jesus Factor) modifications to decompression profiles that are sometimes practiced to enhance safety for specific worksites or dive conditions. Typically, this type of modification is made by the supervisor, without any final confirmation that it was required or appropriate to the specific worksite conditions.

Based on a comparison with other worksites, the microbubble report will give the supervisor a more accurate feedback on the situation. This information combined to a help-decision service delivered by Azoth Systems is proposed to optimize divers safety while ensuring company's missions.

Know more: [www.azoth-systems.com](http://www.azoth-systems.com)

Contact: [contact@azoth-systems.com](mailto:contact@azoth-systems.com)

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