

# UNDER WATER

The Official Publication of the  
Association of Diving Contractors International



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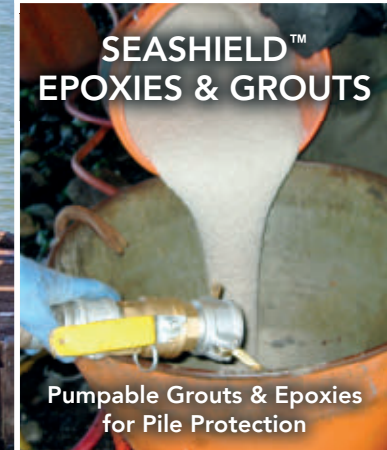
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### ADC I Online Buyers' Guide

When looking for trusted suppliers and services, our members turn to the official Association of Diving Contractors International **Online Buyers' Guide**. Available 24 hours a day, 365 days a year, the newly redesigned **Online Buyers' Guide** allows members to find the products and services they need quickly and easily.

Visit our **Online Buyers' Guide** today at [adci.officialbuyersguide.net](http://adci.officialbuyersguide.net).





**A**s we approach the new year, ADCI is taking a look into overall performance and lessons learned. Without shadow of doubt, safety and health-related matters dominated the Association efforts and engagements. Along same lines, all complied knowledge from this year will be funneled in a new revision on the Consensus of Standards 6.5 expected to be published in 2023. Many thanks to the Safety Subcommittee and Chair David Dodd from Consor for their hard work and dedication.

The Marketing Subcommittee performed exceptionally this year, establishing the Association's presence in the social media space. The Association's podcast was a success from its initiation. I encourage all members and supporters to listen. Many thanks for this subcommittee Chair Gary Jones from Broco for making this necessary transformation happen for the Association.

As we already announced in previous magazines, Programs and Products Subcommittee was established with intent to establish virtual content that will reach members and supporters fast and easy. The subcommittee is in project evaluation phase. I'm looking forward to learn about the progress in the next couple quarters.

I'm excited to share that UI 2023 will be an in-person event. It will be conducted in conjunction with 2023 Workboat Show scheduled for December. Many thanks to Richard Fryburg from Subsolve for taking lead on reestablishing UI23 after a COVID break.

In addition, I would like to thank ADCI staff, board members as well as members and supporters for a successful year. I'm looking forward to work with you in the future on advancing the Association agenda.

On behalf of the Association, thank you for being a valued supporter and allowing us to continue to serve you.

We wish you a happy holiday and New Year. 

**I'm excited to share that UI 2023 will be an in-person event. It will be conducted in conjunction with 2023 Workboat Show scheduled for December.**



I hope you enjoy this final 2022 edition of *Underwater* magazine. As we leave 2022 and enter into 2023, I am amazed at the volume of action items slated for the coming year. The Association was blindsided by the unfortunate incidents at CDA Technical Institute and as a result was not able to move forward with a number of initiatives in 2022. One of those was the completion and issuance of the ADCI Consensus Standards (edition 6.5). Like everything else in life, you embrace the challenges and come up with ways to make our industry safer, and as such we will be taking all that came from this negative chapter in commercial diver training and use it as a springboard for positive change.

In 2023, the ADCI will invite all industry-recognized schools in the U.S. that utilize the ANSI/ACDE-01-2015 standard for commercial diver training to work with the ADCI and other identified industry stakeholders to give the standard a good scrub. While the standard as a whole is a sound one for commercial diver training, it has not kept pace with industry needs and growth. In fact, the ANSI standard doesn't even have a module on saturation diving (theory/practical), which is a huge delta when you look at the modes of diving utilized globally for offshore (and in many instances inland) commercial diving operations. That along with a number of other identified areas will be addressed in what will be the new proposed commercial diver training standard, which will create greater harmonization with the ANSI standard and other industry-recognized commercial diver training standards under the International Diving Regulator and Certifiers Forum (IDRCF). The new ANSI standard will also need to look at such areas as offshore renewables and how we can best prepare divers for this new area of work in the U.S.

There are a number of efforts on the part of the Carpenters and Pile Drivers Union to develop commercial diver training programs for union members that fall in line with ADCI requirements for equipment, operations and certifications, which should come into fruition in 2023. The ADCI has pledged to work with existing and proposed training programs to raise the bar and ensure that the programs sanctioned and recognized by the ADCI are some of the best available in the world. Santa Barbara Marine Technologies and Divers Institute of Technology have been the standard bearers for schools in the U.S. on how to sustain iconic programs that have world-wide recognition.

In addition to the proposed revisions, there will be an even greater design for enforcement of the standards as a result of the CDA fatalities and lack of instructional and administrative oversight. The ADCI Audit Initiative from 2017-2022 taught us a lot a few of the deficiencies uncovered with some of ADCI sanctioned schools, such as the failure to adequately cover ALL required modules outlined in the ANSI Standard. The teaching of HeO2 Mixed-Gas Diving (theory/practical) is one area that has been conveniently omitted by some training programs largely due to an instructional staff that doesn't have much experience with this mode of diving, or the ill-conceived notion that this form of diving is no longer utilized within the global industry. 2023 will be the year that this and other gaps in commercial diver training get these gaps addressed.

In closing, I will detail all of the action items for 2023 in our next edition. For now, please enjoy the holiday season, be safe, come up with positive ways to be a part of the solution, and all the best to you, you teams, and families. 🚩

**Like everything else in life, you embrace the challenges and come up with ways to make our industry safer, and as such we will be taking all that came from this negative chapter in commercial diver training and use it as a springboard for positive change.**





## ADCI Launches New Podcast

As part of the association effort to bring more content to members and supporters, the ADCI will launch a new podcast, The Downline, this fall. The podcast will highlight current industry events and discuss topics guaranteed to spark conversation within the industry. Gary Jones from Broco Industries, ADCI Board member and Marketing Committee Chairman, will co-host the podcast with Phil Newsom, ADCI Executive Director.

## Have You Checked Out Underwater online?

If you haven't already, be sure to visit the online version of *Underwater* at [www.underwatermagazine.com](http://www.underwatermagazine.com). Features and columns from the magazine are searchable by keyword on the site, and past issues are archived.



# Talk to Us

ADCI has revamped its social media. Be sure to check out Twitter, Facebook and LinkedIn for announcements, CTAs and newsworthy callouts.



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# Underwater Ships Husbandry Diving

Take a deep dive into the risks associated with underwater ships husbandry and how diving fatalities can be prevented

BY PHIL NEWSUM, EXECUTIVE DIRECTOR, ADCI

**U**nderwater ships husbandry (UWSH) is a term used to refer to performing underwater repair of ships, overhaul of propulsion systems, and regular maintenance such as hull cleaning and propellor polishing and other general upkeep. Divers are usually employed to carry out inspection of the integrity of submerged areas and components of the vessel as an alternative to drydocking.

In-water bottom Survey, better known as Underwater Inspection in Lieu of Drydocking (UWILD), creates significant cost saving opportunities for vessel owners by minimizing downtime due to regular inspections and

maintenance being performed in ports, harbors and anchorages while the vessel is still on hire.

Divers would be deployed to inspect the hull and identify if there are any major defects such as cracks, areas of active corrosion, condition of the paint and hull plating and marine overgrowth, which would jeopardize strength, water-tightness and safety of the vessel. After inspection, they would proceed with necessary repairs.

Repairs performed while a vessel is waterborne can range from simple to complex. Hulls, materials, coatings and components vary greatly, requiring different techniques of cleaning and maintenance. Additionally, there





are many different class societies and different requirements for inspection and survey, which can also alter methods and tasks.

Therefore, underwater inspection and repair require great planning and following of safety procedures for individual tasks.

The submerged side of the hull is an overhead environment with no direct vertical access to the surface. Divers operate handheld rotary brush units, self-propelled multibrush cleaning vehicles, water jets, and handheld scrapers in order to perform hull cleaning. This is followed by propeller polishing, welding, fiberglass repair, shaft coating, painting and more. The hull, therefore, represents an entrapment hazard and serious injuries can occur if a diver comes into contact with the ship's active propulsion and steering system or when they encounter strong differential pressure suction forces associated with sea chest and discharges.

The diving industry is generally considered to be a high-risk industry. Statistics show that significant number of underwater accidents and diving fatalities are associated with the improper performance of underwater ships husbandry diving.

Globally, shipping industry regulations are largely unified, while regulations related to port operations are not. Ships husbandry and the related diving are subject to different port regulations and despite best attempts to prevent underwater accidents and diving fatalities, they do occur.

Port authorities have a range of legal obligations in relation to the health and safety of both their own employees and to other users of the waters within their jurisdiction and port facilities. Threats to divers' health and safety and awareness of diving activities hazards and risks

associated with underwater ships husbandry still remain unrecognized in certain parts of the world.

Today, in most port jurisdictions, only surface-supplied diving is authorized for this work because this not only secures the diver's breathing gas supply, but also provides a guideline to the exit point by following the umbilical. It enables communication with the surface team and support and assistance in case of emergency or injury.


### **Joint Initiative**

As a joint initiative to tackle the issue of recent diving fatalities, International Diving Forum (IDIF) has taken up the task of improving diving safety awareness in this area since 2019.

IDIF has been incorporated by three key industry stakeholders – the Association of Diving Contractors International (ADCI), the International Marine Contractors Association (IMCA), and the International Association of Oil and Gas Producers (IOGP).

Collectively, we have been working on raising awareness and have been campaigning to prevent fatalities associated with underwater ship husbandry diving and reducing the risk involved and the practical dangers of shallow water diving in ports, harbors and anchorages.

We believe all work related to ships husbandry can be carried out safely if the appropriate risk assessments have been carried out and the necessary control measures are communicated to those concerned.

With the right training, experience, knowledge, protocols and tools, the risks associated with UWSH can be minimized and diving fatalities prevented. 



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# Diving Equipment: Is Standardization The Way Forward?

Standardization can pave way for collaboration between industry stakeholders to create a more diver-friendly infrastructure



BY JOVANA SOKOLOVIC,  
HEAD OF INNOVATION,  
SMARTDIVES

**D**iving contractors have an enormous responsibility of managing diving operations, including forming the right dive team according to the project requirements, buying, renting, maintaining and operating diving equipment on site, conducting risk assessments and emergency planning.

Whether renting or buying diving equipment, the key considerations for diving contractors should be complying with local laws and regulations, applicable diving operational practices and recommended guidelines (e.g., ADCI, IMCA, and Class). They should also consider if the equipment will be accepted by the end client during mobilization and whether or not it complies with their diving policy. Most importantly, diving contractors must consider reliability and quality of the equipment, as it is considered lifesaving equipment.

These contractors are constantly looking for ways to get the most out of their diving spreads by maximizing operating efficiency, reducing

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downtime by proper PMS and regular testing of the systems readiness status.

Commercial diving is a highly competitive and niche market. Often, diving contractors act on urgent requirements. So, access and affordability of high-quality diving equipment can make a big difference.

Currently the diving equipment market is mostly oriented to bespoke and custom-made systems. This is driven by variety of project requirements and environments in which diving contractors need to conduct the diving operations. As diving equipment is not a high-volume

market, it has been exceedingly difficult for manufacturers to standardize equipment that will comply with the variety of regulations across the globe and offer a standard kit which will cater to majority of diving operations across multiple markets that are served by the commercial diving industry.

At SmartDives, we are strong advocates for diver-first approach in designing and manufacturing the diving systems, and we strongly believe that the future lies in dive system standardization and modularity.

### **Consistent Quality**

Standardization brings consistent quality, which improves safety and enables evolutionary development of the dive systems and systems improvements to be made while retaining overall system integrity.

Generally, standardization supports development of modularity and easy integration to other support system and ultimately development of diver friendly infrastructure for safer diving operations, both in offshore facilities as well as in the onshore environments.

In our case, standardization enabled us to eliminate individual dive system design set-up cost, significantly reduce inventory and simplify our supply chain management and offer a better competitiveness to our clients with quality systems at an affordable price. Moreover, it eliminated lead time for delivery of systems as we build-for-stock not build-to-order.


### **Efficient Maintenance That Boosts Diver Safety**

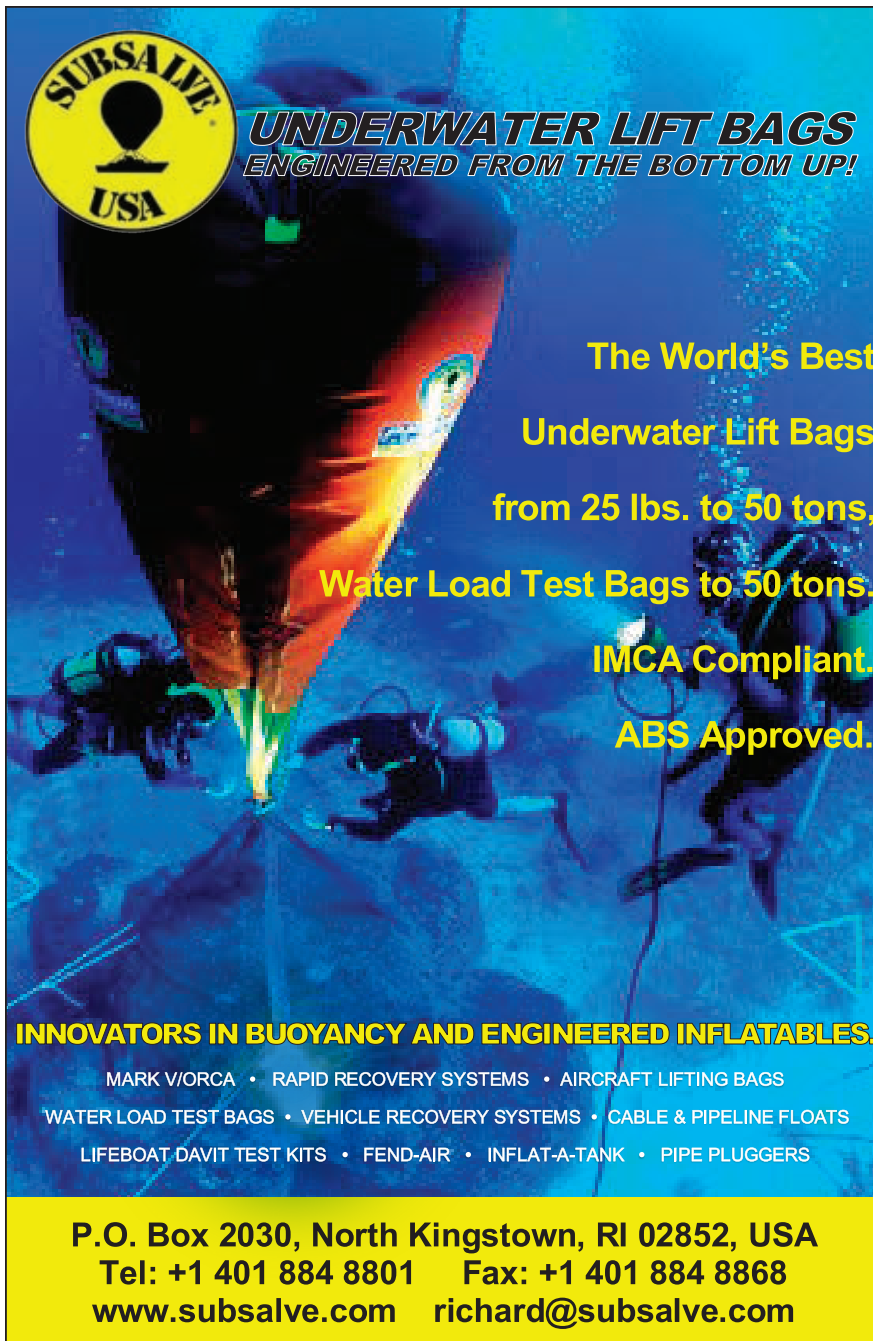
The greater the variety of diving systems in the fleet, maintenance becomes more complex and the burden of keeping stock of all spare components with time impedes proper upkeep of the systems. Components become obsolete, difference in systems make technicians spend more time on each individual task, and if the diving operations are conducted in a remote location, it can be difficult to find a particular component in the local market.

### **Standardized Equipment As A Way Forward**

Standardized equipment allows standardized prices, which in turn helps diving contractors plan better their overall equipment expenditure when developing their diving operations. Also, end clients will be familiar with the equipment specifications, which would reduce the time spent on auditing equipment during mobilization.

Diving supervisors, who will operate the equipment, will spend less time familiarizing themselves with it. As operators of the equipment, they would be in the best position to provide feedback to the manufacturers and drive the innovation and next generation equipment updates from real application standpoint.

Standardization can lead the way in getting industry stakeholders to collaborate more closely in creating more diver friendly infrastructure, eventually increasing the overall safety of underwater workers while making room for new advancements in the underwater intervention sector. 



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# How Diving Impacts Critical Oil and Gas Operations

As the oil and gas industry continues to expand offshore, operators must continue to address risks for diving activities

BY TONY GREENWOOD, DIVING CRITICAL ACTIVITY SPECIALIST, EXXON MOBIL

**T**he oil and gas industry across the world relies on commercial diving contractors to assist with the various stages of production. Very often, the need for diving is underestimated by the operator, although on any given day, there are hundreds of dives taking place offshore and inland to support oilfield operations.

In the upstream sector, manned diving is routinely used for the installation, repair and maintenance of subsea umbilicals, risers and flowlines (SURF) and for maintaining floating and fixed structures. In midstream operations, underwater inspection and maintenance of ships and terminals is common. For downstream operations, underwater services are deployed mainly for maintaining industrial ponds, canals, and tanks used to supply water for facilities and refining, or navigation channels for vessel transit. The environmental sector, too, deploys marine biologists to perform surveys and studies of marine animals, plants and corals.

## Critical Activity

Understanding the importance of diving as a critical activity and its associated risks in the planning phase of the project is important. The underwater environment makes access to the worksite challenging, and the professional and technical resources needed to undertake the complex work can be very limited.

A single diver working hundreds of meters underwater may be performing a critical task like installing a production system component, repairing a pipeline or assessing a structure to ensure continued safe operations. Scenarios like this show how important diving can be in a portfolio of solutions, and the impact that it can have on safety, schedule, cost, quality, environment, and operating performance.

A good example of the critical need for diving is the support it provides to the vast global fleet of ships and ocean-going carriers delivering petroleum products. Divers perform cleaning and Underwater Inspections in Lieu of Drydocking (UWILD), which is carried out routinely over the service life of the vessel.

Additionally, divers clean and remove marine growth from the ship's hull, sea chests and

propulsion systems, which if not done routinely, causes hydrodynamic deficiencies, such as loss of speed resulting in increased fuel consumption. The biochemical corrosion damage caused by marine growth can greatly increase the maintenance costs to the ship and reduce its lifecycle.

Diving is also used in the construction and maintenance of jetties, piers and dock facilities at shore-based locations, and for maintaining inland pipelines and cables that can cross rivers and other bodies of water.

## Diving: Risks Versus Benefits

Despite numerous benefits that diving offers to oil and gas operators, there are some risks that must be carefully considered by both, the driving contractors and operators. The health and safety risks to the underwater worker can have severe consequences, if not recognized and managed. Injuries and fatalities could occur if the diving operation is not planned and executed following best practices and guidelines.

Some of the more severe risks of diving include decompression illness, pressure differential creating suction hazards, and energizing a ship's mechanical or electrical systems

when the diver is present. Some of the most common causes of incidents are failure to identify underwater hazards, improper isolation of energy sources, not using a permit to work system, and lack of knowledge and experience in key personnel.

In response to some of the more hazardous activities, operators and service companies have leveraged technology well, creating intervention methods for some underwater tasks that were traditionally performed by divers. Today, some of these intervention methods can be used in conjunction with divers to reduce risk.

Despite technological advancements, many tasks still rely on manned diving to provide efficient and predictable solutions. And when managed diligently, while thoroughly applying proven safe work practices and standards, the risks are significantly reduced to levels that are as low as reasonably practicable (ALARP).

## Key Areas For Operator Focus

Oil and gas operators should consider three key elements to increase the likelihood of safe and efficient diving activities.

➡ **1 Infrastructure design:** Ensure that the operators' facilities and systems are considerate of using divers. Designing 'diver friendly' systems and components early in planning is necessary to eliminate or reduce hazards and complex work problems that diving contractors are often left to solve during installation, repair or decommissioning.

➡ **2 Contractor selection:** Ensure the underwater operation is carried out by a competent and qualified diving and marine service contractor, proficient in the work scope needed. Not all diving services are the same. Different water depths, work location and environments require different methods of diving, such as surface supplied air diving or Helium-Oxygen saturation diving. Some contractors specialize in inspection services, while others are proficient in construction or repair. And the vast array of underwater tasks requires specialized techniques and tooling needed to accomplish the work. Diving regularly accompanies activities such as sub-sea lifting and placing, seabed excavation, welding and cutting, pipefitting, bolting, non-destructive testing (NDT), and many other common tasks. It's imperative to know the service providers capabilities and to apply the right tool to the right job.



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Some of the more severe risks of diving include decompression illness, pressure differential creating suction hazards, and energizing a ship's mechanical or electrical systems when the diver is present.

➡ **3 Regulation and best practice application:** Occupational diving has various degrees of regulation, depending of the country and industry of application. In some cases, there are limited or no regulations at all. In contrast, there are several national and international standards that apply. Knowing the right application of regulation and standard is important when diving is used.

**Systematic Approach To Advance Diving Safety**


As frequent users of diving services, oil and gas operators are in a position to set standards, technologies, and working practices that provide a framework for the diving industry to deploy new solutions for better quality service and innovation in underwater work.

The International Association of Oil and Gas Producers (IOGP), Diving Operation Subcommittee recognised the need for consistent collaboration with different industry stakeholders and began an initiative for cross industry sharing of knowledge and experience. Working closely with the Association of Diving Contractors International (ADC) and the International Marine Contractors Association (IMCA), the IOGP DOSC has established the International Diving Industry Forum (IDIF) as a platform and partnership for sharing.

Since its inception, IDIF works collectively to create better practices, spread awareness of learnings from incidents, creates an inclusive environment for other industry sectors to come together, and champions advancement in diving safety, equipment innovation and personnel skills and competence.

For oil and gas operators, incorporating the IOGP Diving Recommended Practice into operational management systems, and participating in a diving safety forums is a proven way to

ensure that the risks and benefits of diving can be well understood and effectively managed.

As the oil and gas industry continues to expand offshore, the complex challenges of working in the subsea environment will continue as well. In response, oil and gas operators must continue to inspire innovation in technologies and methods to meet the demand for safe and efficient underwater solutions, and continue to address risks for scopes requiring diving activities. 

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# What's Did You Say? The Truth About Radios



BY CHRIS GABEL,  
OCEAN EYE, INC.

**Y**ou know the old adage: the job is only as successful as its weakest link. Nowhere is that more true than when you are depending on your electronics to get the job done. We expect that when we turn them on that they will function as designed every time even after they've been ignored for long periods of time. Interrupted communications will abort a dive (unless you have the memory and desire to resort to line pull signals) and can even stop the rest of the dive day. Personally, the last thing I want to have happen is to lose production time because of not performing some simple and quick equipment checks.

The good part and bad part about today's electronics is that they have become significantly more reliable. We have all gotten used to devices that offer more options and require less maintenance. The flip side of that benefit is with the reliability sometimes comes complacency. The old "it worked yesterday and it will work tomorrow" attitude can come into play.



## The Most Important Piece - POWER!

Yes, power. Without a supply of electricity, radios don't work. Since most radios are powered by batteries, let's take a look at the types of batteries you may encounter. Some radios are powered by non-rechargeable batteries, also known as single-use batteries. Many units today come with rechargeable batteries. In fact, several radio manufacturers now only offer a rechargeable battery in their pieces. You may no longer have the option of a rechargeable or a single use battery.

There are several different variations of rechargeable batteries. It seems like there is new technology being released every other day. If you don't think so, take a look at the news. Since the introduction of things like smart phones and electric cars, the battery

density, reliability, and power output changes faster and faster.

The main players are NiCad, NiMH and Li-Ion. NiMH (Nickel MetalHydride) offer higher energy densities than NiCads (Nickel Cadmium). NiCad has about half of the capacity of NiMH batteries. That means more power from the battery with no additional weight. NiCad batteries tend to suffer from the "memory effect," NiMH batteries do not.

Li-Ion batteries represent the current gold standard for portable power. They produce the same energy as the NiMH batteries but with a 35% weight advantage. That means the same amount of power in a smaller footprint. The downside is increased cost to the consumer.

No matter what battery you choose or that comes delivered with your particular radio, it's





important to check and maintain them on a regular basis.

One big challenge with batteries is the environment that they have to work in. Saltwater corrodes terminals, and once that happens, it's just a matter of time before nothing works. I've personally pulled out batteries that had so much corrosion they solidified in to the ring terminal. Others looked as if they spontaneously

became pregnant because the casing was about to rupture. None of which was a happy clean up experience.

I found that nothing, and I mean nothing, is more frustrating than a bad ground. A bad ground can cause a myriad of frustrating symptoms that can be difficult to track down.

Most of the batteries are hidden in creative ways so that they are not visible and do not take

up valuable space. That's good news and bad news – out of sight but out of mind. You need to dig out the battery regularly and check the terminals for corrosion and clean them. Make sure that you pay attention to both terminals equally.

Just do an overall visual inspection of your battery. As I noted above, all batteries are not created equal. Some are rechargeable, some are not (sometimes called single-use batteries). Some will last longer than others and some have specific requirements. Note the battery type, model, and any other specifics that are pertinent to daily operation on the inside of the lid.

For example, on some models, you need to make sure that the charger is unplugged from the unit before use. I'm not saying you need to memorize the entire manual on the box, just the really important day-to-day information. If you have multiple radios in your environment, what you use one day may not be what you use the next. It's just going to make life easier for everyone if the operators don't have to track down the most important information or guess.

Bad things can happen when people have to guess. Not the least of which is smoke and fire.

Keep in mind that even rechargeable batteries will degrade over time. Most rechargeable batteries get delivered in a discharged state and need to be charged before use. It's important to condition the battery every two to three weeks. Conditioning means to fully discharge and then charge the battery. If you don't, it could potentially shorten the life of the battery. The exception to that rule is the Li-Ion, or Lithium Ion, battery (they don't suffer from the memory effect). That said, there has been a recent recommendation to only discharge Lithium Ion batteries to no less than about 60%. That will allow it to achieve its maximum service life.

It's normal for the battery to be warm to the touch during charging. If the battery isn't going to be used for a month or longer, most manufacturers recommend that you remove the battery from the charger and store in a cool, dry place.

Battery life can vary but under normal conditions they should last between 500 and 800 charges. That equates to somewhere around three years. The battery will hold a charge for a shorter and shorter amount of time as its life cycle comes to an end. This is a good warning sign that it's time to make that replacement battery purchase.

Short-term storage requires you to keep the battery clean and dry. If you're not going to use

it for a while, it becomes even more important to make sure that you keep the battery in a cool (not freezing cold) and dry place. Make sure that the space is vented. Keep them away from metal objects. I know, that may seem like common sense, but there are times folks are in a hurry, throw the battery on a shelf and end up shorting the contacts on something as silly as the shelf supports.

Also keep in mind that all three of the rechargeable batteries discussed in this article will self-discharge during storage. They don't keep a charge on the shelf forever. Remember to break in your batteries again after long-term storage before use.

Check with the particular manufacturer of your batteries for specific care instructions.

One thing to remember is that a low battery or a battery at the end of its life cycle can produce strange symptoms on your radio – squealing feedback, interrupted communications and other problems. A radio that has worked faithfully for years may suddenly start doing the strangest things. So you may not have to replace entire radio.

When in doubt, the first thing to do is replace your battery.

**Keep It Clean**

Cleanliness is next to, well, you know. If there is one commonality that I've seen in the radios that I've used and/or worked on, is that cleaning is not the first priority. That's especially true in the areas that you don't necessarily see every day. Some of the things that get trapped under the cover plate would curl your hair.

Most are benign – bugs, dirt and other biological matter get under the plate and build up. Every once in a while, you need to pull the plate and give the entire radio a good cleaning. If you're not comfortable pulling the plate off, have a trained technician do it.

While it's apart, take a look at the components. You don't have to be an electronic genius to look over the switches, speakers and potentiometers and see if they are rusted or damaged. Again, if you're not comfortable with removing the cover, then by all means, don't. Have a qualified technician look over the



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radio and let you know what they find. Don't be afraid to ask them to explain and show you their findings including sending you photos of the problem components.

Rigging the radio – just one word of advice, *don't*. If it's broke, fix it. If you need to fix it, fix it with the right component. I know that it's a temptation to use whatever you have on-site to get you through the day, but it may end up costing you more in the end. With more sophisticated parts that are being utilized in today's radios, you can end up damaging the radio permanently by using bailing wire and duct tape to get through a couple of hours.

**Seals**


Check the seal. Take a look at all of the seals. Not only the lid seal, but also check the seals on the faceplate and around the pressure relief valve (if equipped). Just like any other seal, make sure that they are properly cleaned and lubricated. Check for cracks and breaks in the rubber. If in doubt, replace it.

You need to take care of your radios as you would any other piece of dive gear. Just

because it doesn't deliver air doesn't mean that it's any less important. They all need to be checked at least annually. You know that if you don't, that radio will fail at the most inopportune time.

Dive safe.

Have a comment or question on equipment maintenance for Chris Gabel? You can reach him at [cgabel@oceaneyeinc.com](mailto:cgabel@oceaneyeinc.com).

Chris Gabel is the president of the award-winning veteran-owned company Ocean Eye, Inc. Chris works with companies and government entities to create safer and more profitable environments. Chris' articles on commercial diving equipment and safety have been featured in several different industry magazines and translated into multiple languages. He is a member of the ADCI Dive Safety Committee and has himself been diving since 1988. 

# please ask!

In future issues, I would like to continue from time to time addressing your questions. I'd like you to send in some maintenance questions that you want to have answered. You're the reason that these articles are written, so I want to work on subject matter that you are interested in. Send your questions to me via email at [CGabel@oceaneyeinc.com](mailto:CGabel@oceaneyeinc.com) or you can snail mail them to me at:

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