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Personally, I find that there is no greater joy in life than when I'm submerged in deep blue waters, exploring this magnificent natural habitat. Which is surprising because growing up in Florida, I spent most of my childhood terrified of the water. I pinned my fear down to a minor drowning accident I had when I was 5, which took me years of therapy to get over. Astonishingly, as I began exploring the Florida waters once again, I developed a newfound connection with the deep blue sea. Before I knew it, I became an avid scuba diver and took several professional courses to learn more about the art and science of deep diving. Hey, I'm Martin McQuillen, also known as Marty McBubblehead😀. I assume you've taken a look at some of my articles (if you haven't, please check them out). I'm going to tell you a little more about Diving Lore and how this website came to be. So, put on your gear, and let's dive right in! A Little About Me You might be wondering where I got the nickname Marty McBubblehead from. Well, funny story. One of the major milestones I had to pass during my years of therapy involved getting over my fear of water – slowly but surely. After several long, hard years of therapy came the final test when I was asked to try and overcome my fear of water. The session began by dipping one toe into a shallow pool and then another, which would go on for several sessions. However, I, being the impatient brat that I was back then, decided to make a run for it and dive right into the deep end of the pool. Boy, was everyone shocked and terrified that day! But guess what, I made it out of there alive and kicking and was playfully given the name "Marty McBubblehead." And, ever since, it stuck with me. As I grew older, I began exploring the various beaches and wrecks of Florida. As luck would have it, I not only enjoyed these little explorations, but it soon became my passion to dive and survey the parallel world under the deep blue seas. Traveling became my passion, and I visited several places in Central and South America, and parts of Europe. Of course, everywhere I went, I longed to explore the majestic waters and what it had to offer underneath. Once I finally got my certificates to become a professional scuba diving instructor, I decided to open my own website and share tips and tricks with interested readers. And well, that's how Diving Lore came to be! What's in a Name? I was always into fantasy and fiction. In fact, when I am not busy exploring new reefs and water bodies, I'm generally out with my van driving along new roads and listening to podcasts and stories about the fantasy world. My passion for knowing about the unknown and dis-attaching myself from reality got me into the world of fantasy and lore. And, when I began exploring the majestic blue world of the seas, I felt like a futuristic explorer in my scuba gear traversing the unknown world of the waters. So, when the opportunity came to start my website I wanted something unique and interesting. And when I was browsing through some domains and I stumbled upon the name Diving Lore, I grabbed it without hesitation. What Does Diving Lore Offer? My unbounded love for the oceans and everything it had to offer motivated me to pursue my passion and become a professional scuba diving instructor. Of course, I keep reading, exploring, and learning more about scuba diving all the time and I'm excited to share my knowledge with fellow scuba diving enthusiasts. Soon after I became an instructor, I noticed people coming up to me and asking me all kinds of interesting questions. While I had the answers to most, some of them left me dumbfounded and curious to learn more. And so, I began my deep research into this world. As I kept learning more about it, my curiosity whetted, and my mind was continually blown by all the facts I got to know; I decided to create a website to share this information with everyone. Diving Lore strives to build a community of like-minded people who want to explore the world of scuba diving and learn all about it. I want people to fall in love with the oceans with as much passion as I have. On my website, you will also discover many great scuba destinations and interesting articles about snorkeling too. While you're here, make sure that you take a look at the "Gear" section as well. You will find all the information you require about the best scuba masks, fins, dive computers or BCDs suited to every individual. You can also find the best dive knives on the market and learn more about why it is essential to carry one on your diving expeditions. I will try my best to share tips, tricks and handy guides that can help you understand this world better. Keep in Touch I appreciate any questions, comments, and suggestions you may have concerning diving. Kindly send it through the contact page or via email at martin@divinglore.com. My Address & Phone Number 641 Wisteria Ave Umatilla, FL 32784 352-669-8632 One of the biggest downsides of being human, from a diving perspective at least, is the fact that you're unable to breathe underwater. This is why we have scuba tanks with us during our dives, to enable us to breathe longer under the water. Now, for those of you who are fairly new to diving, but are looking to take your dives to the next level, you may have noticed those unmistakable green and yellow canisters containing Nitrox. Nitrox for a diver is like spinach for Popeye. Okay, it doesn't technically give you superpowers, or forearms that would put a pro arm wrestler to shame, but it does help considerably, in a whole host of different ways. Nitrox depth limits may not be as impressive as those you'd enjoy with regular oxygen, but just how deep can you dive with Nitrox? Well, that's what we intend to find out. If you're considering using Nitrox for your dives, we're going to explore the maximum Nitrox depth limits, look at what a Nitrox MOD is, and learn more about Nitrox in general. Here's a simple guide to help you understand Nitrox depth limits, and Nitrox in general. Before we can look at the max/maximum depth with Nitrox, we first need to understand precisely what Nitrox is. Those with even the most basic interest in diving will no doubt be well aware of the fact that you are severely hampered by the fact that humans cannot breathe underwater. As diving literally involves being underwater, and exploring some of the world's natural beauties found under the water, you can understand why not being able to breathe underwater may be a bit troublesome. To get around the whole not being able to breathe underwater, divers will instead use oxygen tanks with breathing apparatus which enables them to breathe underwater for a considerable amount of time. Inevitably however, as humans we're never satisfied and are constantly looking for new ways to push ourselves and make something even better, which is why Nitrox was created for divers. But what the heck is it? Well, despite the cool-sounding name, Nitrox and EANX is nothing more than nitrogen mixed with higher concentrations of oxygen. But why? Well, by combining nitrogen with higher volumes of oxygen your body will absorb less nitrogen, and you can therefore breathe underwater for longer fewer risks of oxygen toxicity. You may also hear Nitrox being referred to as EAN (Enriched Air Nitrox) and while some people use the terms Nitrox and EAN interchangeably, there are a couple of key differences you need to be aware of. Put simply, by combining nitrogen with oxygen in a ratio of more than 21% oxygen, you can create Nitrox. When people talk about a Nitrox MOD, it is EAN that springs to mind as this allows for more impressive nitrox depth limits. EAN Nitrox is basically a combination of air and oxygen in which the oxygen concentrations are greater than those found within the air, which in this instance is more than 21% oxygen as the air we're all breathing now is 21% oxygen and 79% nitrogen. Needless to say, any diving tank must provide this for a safe and comfortable diving experience. In recreational diving, you'll usually find that mixes of up to 40% oxygen can be used, with 32% – 40% being the most common. For technical diving however, this is where things begin to get much more sophisticated. Technical diving utilizes EANx mixes containing more than 40% oxygen. Mixes of 100% oxygen are even possible for expert divers. As EANx tanks provide additional concentrations of oxygen, there are a whole host of benefits that keen divers can enjoy, which we're going to look at later. It's easy to sit here and talk about how the max depth with Nitrox is improved noticeably if you use those awesome green and yellow tanks, but what's the science behind Nitrox? How does combining nitrogen with oxygen help you to stay under the water for longer and enjoy more impressive Nitrox depth limits? Diving is not only an art and skill, it is also a science, and is something we all need to take extremely seriously. Failing to do so, and failing to give it the respect which it deserves can have devastating consequences. When we go diving, the pressure of the water can lead to nitrogen found within the air that we're breathing to be absorbed and dissolved into our bloodstream. Needless to say, the greater the pressure, the greater the volumes of nitrogen will be dissolved in your bloodstream. Once you've absorbed a certain amount of nitrogen, you must come back up to the surface so as to avoid DCS (decompression sickness) or mandatory decompression stops. Nitrox reduces the amount of nitrogen you absorb, which means that you can spend longer in the water before you need to re-surface. In terms of how deep can you dive with Nitrox, we'll look at the exact numbers a little later on. Before we do that however, we'll elaborate on the science. Put simply, by replacing some nitrogen with oxygen, this reduces the amount of nitrogen which is available. This in turn means that it doesn't dissolve in your bloodstream as quickly. Technically speaking, this is referred to as the EAD (Equivalent Air Depth). Divers with 36% Nitrox at 105 feet for example, dissolve nitrogen into their bloodstreams at the same rate they would when breathing normal air at 80 feet. This means that a diver's typical no decompression limit of 20 minutes is extended to 40 minutes, allowing for a bottom time of double the normal amount. Before we leave you to head off and start enjoying the amazing benefits of Nitrox diving, we're going to look at Nitrox depth limits. One of the most common misconceptions when it comes to Nitrox diving, is that Nitrox enables you to dive deeper because it allows you to spend more time in the water. This is not true. In fact, Nitrox is beneficial when used for shallower dives. The deeper you dive, the greater the pressure becomes. The greater the pressure, the more toxic the oxygen becomes as a result. The higher your oxygen concentrations are, the shallower your dives should be. If you are looking to go deep sea diving several hundred feet below the surface, Nitrox is not suitable and would actually be very dangerous. You can of course, and should, use a dive table and a dive computer to tell you the max depth that your Nitrox tank can handle safely. To help give you a better understanding of your max Nitrox depth limits, we're going to provide a simple Nitrox MOD table. In diving terms, MOD refers to 'maximum operational depths' and it is surprisingly easy to explain. Basically, MOD refers to your depth limits calculated, based upon the percentages of oxygen your breathing gas contains. Obviously different concentrations of oxygen will allow for different depths. As we've explained, too much oxygen can be very dangerous, which is why you need to know your limits. The following table should prove very useful: O2%Feet (saltwater)PO2 1.4 PO2 1.6Metres (Saltwater)PO2 1.4 PO2 1.621%18721856.766.222%17720753.662.723%16819750.959.624%16018748.356.725%15217846.054.026%14517043.851.527%13816341.949.328%13215640.047.129%12614938.345.230%12114336.743.331%11613735.241.632%11113233.840.033%10712732.438.534%10312231.237.135%9911830.035.736%9511428.934.437%9211027.833.238%8910626.832.139%8510225.931.040%829925.030.050%597318.022.060%445513.316.770%334210.012.980%25337.510.090%18265.67.8100%13204.06.0 Needless to say, if you are diving with Nitrox, it is absolutely essential that you use a dive computer to ensure that you never violate the Nitrox MOD. Doing so could result in oxygen toxicity and could potentially lead to drowning. Yes, it really is that serious, so make sure you use a dive computer! As great as Nitrox is, it is not designed for deep diving and the Max depths with Nitrox you can enjoy are not thought to be as impressive as those with other blends of gas and air. If you are looking to take your dives deeper, here are a couple of alternatives to Nitrox using helium instead. Just be aware that we are deep into technical diving territory now, and these alternatives are only suitable for experienced, certified, and credible divers. Heliox is a type of diving gas mix which combines oxygen with helium, rather than nitrogen like you'd find with Nitrox. Heliox can contain less oxygen than regular air, or the same amount (21%) and is designed for deeper dives. Because it contains less air, there is a far smaller risk of oxygen toxicity, making it perfect for diving deeper under the water. The main downside is that Heliox can result in a loss of body temperature as helium is a poor body temp conductor. This means the body loses heat much quicker. You do usually also require an additional tank of nitrox or air for shallower sections of the dive, so having two tanks can be restrictive. Trimix also replaces the nitrogen with helium in order for divers to dive deeper than they would with Nitrox. With Trimix, different blends of oxygen and helium can be used depending on the specs of your dive. Three of the main blends are: Normoxic – This blend contains the same amount of oxygen as the air we breathe, meaning you can dive the same types of depths as you would with regular air. Hyperoxic – This blend contains higher volumes of oxygen than those found in normal air, allowing for slightly deeper dive depths. Hypoxic – This blend contains a smaller oxygen concentration than the amount found in air, allowing for deeper dives still. The downside is that it is unsuitable for use at the surface. To get around this issue, divers use what are known as "travel gasses" until they are deep enough under the water that they can then switch to the Hypoxic Trimix instead. Before we can look at the usual Nitrox depth limits you can enjoy, and indeed, the benefits, we need to look at the potential dangers. Even though Nitrox diving provides a wide range of advantages for keen divers, there are certain risks you need to be aware of. Like most things in life, you can have too much of a good thing, even if that good thing is literally needed for us to live. Oxygen is a prime example of this. Even though it is literally needed to keep us alive, too much oxygen can be very dangerous for us. Excess exposure to oxygen can result in all manner of ailments and health issues. Technically, this is known as 'oxygen toxicity' and can cause all manner of health issues, including: Seizures Loss of consciousness Trouble breathing Damage to the lungs Damage to the eyes Convulsions Risk of drowning Organ failure/death Just to make matters worse, there are no obvious warning signs or symptoms of oxygen toxicity, and it can often strike suddenly, without warning. This why proper certification and Nitrox training is needed before you can dive with EAN. Another risk, which is ironic considering it is designed to be used in water, is that Nitrox tanks are highly flammable, so the tanks must be handled, cleaned, and stored correctly, otherwise they become a fire hazard and may even explode. By now you're obviously well aware of the fact that Nitrox can be beneficial for divers, despite the risks. But what exactly are the main benefits of Nitrox diving and is it really that much more beneficial than diving with regular air? Check out these benefits of diving with Nitrox and see what you think. Even though this first benefit of Nitrox diving has not yet been proven by experts, the general consensus is that diving with Nitrox will result in less tiredness and less fatigue for divers. If you've ever been diving with regular air and oxygen tanks, chances are that, once you resurfaced out of the water, got back aboard your liveaboard boat, and sat down to relax, you'd likely feel very lethargic and fatigued. Diver's fatigue is a real thing, but most divers that use Nitrox have found that they feel less tired and fatigued after a dive, than they did with regular air. Again, this has not yet been proven to be scientific fact, but experts believe that Nitrox can help to battle tiredness and fatigue because of less decompression stress. Nitrox results in far fewer microbubbles found within the bloodstream, which puts less stress and strain on your body. This in turn means that you'll have more energy and will feel more awake and alert following a dive. This in itself, is a huge advantage. Speaking of decompression sickness, another advantage associated with Nitrox diving, that has nothing to do with the maximum depth with Nitrox, is less risk of decompression sickness. If you've ever been diving before and have been unfortunate enough to suffer with decompression sickness, you'll know all too well just how debilitating it can be, and how awful it can make you feel. Because of the fact that you have higher oxygen levels in your tank, you're going to be absorbing less nitrogen. This means that there is less of a risk of decompression sickness. By doing the exact same dive profile, but with Nitrox as opposed to just oxygen, you can reduce your chances of suffering from the ill-effects of decompression sickness. As you know, in diving, your bottom time refers to the duration of time that you have spent underwater. This will include any safety spots and your dive computer will record the times for you. Put simply, it is the amount of time you've spent at your max depth, before you begin your ascent to the surface. Needless to say, as a keen diver, the longer you spend under the water, the better. The last thing you want when you've just encountered a shoal of your favourite fish, or an interesting shipwreck is to have to surface again. This is where Nitrox proves to be so beneficial. When using Nitrox you absorb less nitrogen into your bloodstream. This then enables you to stay under the water for longer. Providing you do not exceed your max depth lengths, using Nitrox as opposed to standard oxygen tanks will allow you to spend more time under the water, enjoying all that the ocean has to offer. As an eager diver, the more time you get to spend safely under the water, exploring the many hidden jewels of the ocean, the better. This is another reason why Nitrox is considered to be so beneficial. Diving with Nitrox means shorter surface intervals meaning you can get back under the water much quicker and can get back to exploring. Because of the fact that you will have far less nitrogen to get rid of, this means you'll spend less time de-gassing on the surface. If you're just doing one or two dives during the day, having to de-gas on the surface isn't really a big deal as you will have plenty of time on your side. If however, you have multiple dives planned and you are looking to stick to a diving schedule whenever possible, having reduced surface times can be a huge benefit and can really help give you an even more enjoyable diving experience. Of course, before you begin any dive, with Nitrox or otherwise, you should go ahead and check the accurate times for surface intervals to ensure you're safe and healthy, and that the dive goes smoothly. Finally, as we just looked at when talking about longer bottom times, another reason why Nitrox is so popular is down to the fact that it increases your dive times and lets you enjoy more time in the water. Divers using regular air will usually experience repetitive dive times because of how much nitrogen they use. This is fine for shorter dives, but what about with dives which require more time for exploring? Well, in that case, Nitrox is very useful. When you dive with Nitrox, as you will absorb less nitrogen on your first dive you will get to enjoy more time in the water. Even if it is only a few more minutes, those few extra minutes could be the difference between an average dive, and an amazing dive which you'll remember for the rest of your life. Before we can look at whether using a Nitrox MOD will provide better Nitrox depth limits, we're first going to look at Nitrox certifications. If you wish to dive with Nitrox, you must first take a specialty course with an organization such as PADI (Professional Association of Diving Instructors), SSI (Scuba Schools International), NAUI (National Association of Underwater Instructors), and many more. These courses will teach you all about the importance of diving with Nitrox, how it works, how to do so safely, safety risks, dive limits, how to manage oxygen exposure, diving and safety kit, and much more besides. Most Open Water-certified divers will take a Nitrox certification course, or Enriched Air Diver Certification, which will open up an endless world of possibilities when it comes to diving with Nitrox. As you can see, there are a number of benefits associated with Nitrox diving, and while Nitrox depth limits may not be anymore impressive than with regular diving, the fact that you can stay submerged for longer, and draw out your dive time makes it more than worth it. Any keen diver will tell you that every second you get to spend under the water is precious, and with Nitrox you get precisely that. Those few extra minutes may not sound like much to most people, but to divers, they could literally change your life. Scuba Diver Favorites, Best Rated & Popular Dive Products SEALIFE SPORTDIVER ULTRA PRO 2500 SET W/ LIGHT & HANDLE (SL406) Explore the underwater world li... Atomic Aquatics Dive Equipment: The Atomic Aquatics BC1 +Ai titanium inflator system revolutionizes traditional buoyancy c... Buying Tickets Each person who wants to go diving needs to get their own ticket either online, by c... Yes it's free with purchase of the Zeagle Fury, Stiletto or Ranger BCD'sThe OctoZ Score big with this free-with-purchase promo! Treat yourself to any cutting-edge color screen wrist-... THANKSGIVING IN FIJI: AN ALL-INCLUSIVE ECO-ADVENTURE Your Stay at Paradise Taveuni Experience the ... SOLD OUT Your Stay at Paradise Taveuni QuikVu Consoles are compact, lightweight, and have attachment points on both sides. The thin, braide... Nitrox diving calculations made easy The air we breathe is Nitrox 21, which basically means it has 21% oxygen and 79% nitrogen. When we dive the pressure increases by 1 bar every 10 meters so the partial pressure of the oxygen (PO2) and the partial pressure of nitrogen (PN) increases. PO2 PN Surface pressure 0.21 and 0.79 10 metres 0.42 and 1.58 20 metres 0.63 and 2.37 30 metres 0.84 and 3.16 As you can see the partial pressure of Nitrogen is increasing with depth. To reduce the Nitrogen we can add oxygen. Standard Nitrox mixes are Nitrox 32 and Nitrox 36. Nitrox 32 is 32% oxygen and 68% Nitrogen and Nitrox 36 is 36% oxygen and 64% Nitrogen. Increasing the oxygen increases your no decompression times and reduces the fatigue factor. The extra oxygen gives longer no decompression times compared to no decompression times associated with Nitrox 21 (compressed air). But the extra oxygen gives us other limits. The first limitation with extra oxygen is depth. How deep can you dive with Nitrox 32 and Nitrox 36 First we need to look at Daltons Law of Partial Pressures? Dalton's Diamond Terms used here FO2 is the fraction of oxygen or the % Oxygen PO2 is the partial pressure of oxygen P is the absolute pressure (depth divided by 10+1) The forward slash / is divided by. FO2 x P = PO2 = Fraction of oxygen x pressure = partial pressure of oxygen = Oxygen Dose PO2 / FO2 = P = partial pressure of oxygen / Fraction of oxygen = pressure = Depth PO2 / P = FO2 = partial pressure of oxygen / pressure = Fraction of oxygen . = Best nitrox Assuming a max PO2 of 1.4 Bar for cold water .So is there to much Oxygen in the nitrox ? As you can see the formula for oxygen dose is FO2 x P = PO2 so how can we work out the oxygen dose with Nitrox 32 at a depth of 30 meters if we put the numbers in the formula We get 0.32 x 4.0 = PO2 0.32 the % Oxygen x P the pressure (depth divided by 10+1) = partial pressure of oxygen So 0.32 x 4.0 = 1.28 The oxygen dose is less than 1.4 Bar so its ok to dive. so how can we work out the oxygen dose with Nitrox 32 at a depth of 40 meters We get 0.32 x 5.0 = PO2 0.32 the % Oxygen x P the pressure (depth divided by 10+1) = partial pressure of oxygen So 0.32 x 5.0 = 1.6 . The oxygen dose is 1.6 Bar and 1.4 is the max so its not ok to dive. How deep can I safely dive with this nitrox ? As you can see the formula for depth is PO2 / FO2 = P so how deep can you dive with Nitrox 32? ..if we put the numbers in the formula We get 1.4 / 0.32 = P 1.4 is the partial pressure of oxygen divided by 0.32 the % oxygen = P the pressure. So 1.4 / 0.32 = 4.375 so the pressure is 4.375 Bar ...how do we get the depth from 4.375 Bar The formula to find the depth is (P-1) x10 which is the pressure we just worked out 4.375 Bar minus 1 multiplied by 10.....which = 33.75 So the max depth you can dive with Nitrox 32 is 33.75 Meters........(when you have the pressure move the decimal point and subtract 10) So how deep can you dive with Nitrox 36?... Well if we put the numbers in the formula as above we get 1.4 / 0.36 = P 1.4 is the partial pressure of oxygen divided by 0.36 the % oxygen = P the pressure. So 1.4 / 0.36 = 3.888 So the pressure is 3.888 Bar ...how do we get the depth from 3.888 Bar The formula to find the depth is (P-1) x10 which is the pressure we just worked out 3.888 Bar minus 1 multiplied by 10.....which = 28.88 So the max depth you can dive with Nitrox 36 is 28.88 Meters........ (when you have the pressure move the decimal point and subtract 10) The wrecks at 25m what nitrox do I use ? As you can see the formula for best nirtox is PO2 / P = FO2 So how can we work out the best nitrox for a dive to 25m?... If we put the numbers in the formula We get 1.4 / 3.5 = FO2 1.4 is the partial pressure of oxygen divided by 3.5 the pressure (depth divided by 10)+1 = the % oxygen So 1.4 / 3.5 = 0.4 So the % oxygen is 0.4 which x 100 is the percentage. So the best nitrox for a depth of 25meters is 40% The wrecks at 35m what nitrox do I use ? As you can see the formula for best nitrox is PO2 / P = FO2 So how can we work out the best nitrox for a dive to 35m ....If we put the numbers in the formula We get 1.4 / 4.5 = FO2 1.4 is the partial pressure of oxygen divided by 4.5 the pressure (depth divided by 10)+1 = the % oxygen So 1.4 / 4.5 = 0.31 So the % oxygen is 0.31 which x 100 is the percentage. So the best nitrox for a depth of 35meters is 31% . These examples are just to show how easy the calculations are, and can in no way replace a nitrox course. Last Updated: January 19, 2022 No decompression limit (NDL) refers to the time a diver can spend at a certain depth before needing to ascend so as to avoid decompression sickness. In other words, it is the maximum time when a diver can still ascend directly to the surface without requiring decompression stops on the way up. This time can be calculated using a dive table or dive computer and added safety stops can help prevent the occurrence of decompression sickness. In this article, I will delve deeper into what no decompression limit is, dive tables and how to calculate no decompression limit for the depths you plan to dive, what happens when you exceed no decompression limit, how deep you can dive without decompression, and what emergency decompression stops are. What is No-Decompression Limit? No decompression limit is defined as the amount of time a scuba diver can linger at a certain depth before risking decompression sickness by ascending nonstop to the surface. Our bodies are able to withstand being at depth for only a limited amount of time before there are consequences that can lead to nerve damage or even death. Divers need to learn how to stay inside the no-decompression zone to avoid mandatory decompression stops. The time depends on the pressure at the given depth, which is determined by Boyle's Law. No Decompression Limit Dive Table & Calculation Since decompression sickness is no joke, it is important to properly calculate how long you can stay at depth before risking the bends. Dive tables were created to help scuba divers figure out their no decompression limit. Dive tables may seem extremely intimidating at first, but don't worry I'll walk you through it. PADI provides excellent, easy-to-read dive tables for every diver. This is presented as a three table system and if you are only performing one dive, then you just have to worry about Table 1 to figure out no decompression limits. The depth at which you are planning your dive can be found along the top row of the table. As you trace down the column of your designated depth, the final number in the column is your no decompression limit time. You should note that the no-decompression limit time is the sum of descent time, actual time spent at depth, and ascent time. Always round up to err on the side of caution. If you plan to make multiple dives, your NDL changes because of the build up of nitrogen from your first dive. This is where Tables 2 and 3 come in handy. Use Table 2, to figure out your pressure group by taking the depth and total time of your first dive and comparing against the amount of time you spent at the surface between dives. You then use the pressure group and planned depth for your second dive to figure out your adjusted no decompression limit. For example, if your first dive was at 50 feet your original no decompression limit is 80 minutes. Let's say you only dove for 30 minutes and your surface time before diving to 50 feet again was 10 minutes. According to the dive table, you would be in pressure group E. For your second dive to 50 feet, according to the dive table, your no decompression limit is now 59 minutes. It's important to consult these tables especially for multiple dives in order to avoid risking decompression sickness which becomes more likely the more dives you perform in a day. You can see and download the full Recreational Dive Tables here – in meters or in feet. What is No Decompression Limit for 60 Feet? The no decompression limit for a dive at 60 feet according to the dive table is 55 minutes. However, if your dive exceeds 49 minutes, you will have to add an additional safety stop at fifteen feet. If your dive is between 49 and 55 minutes, your safety stop should last for about three minutes. What is No Decompression Limit for 100 Feet? The no decompression limit for a depth dive of 100 feet is 20 minutes, which means you only have that amount of time to descend, spend at the bottom, and ascend in order to hit the no decompression limit. You will be required to perform a safety stop no matter how long your dive takes if you plan to go to 100 feet. If your dive last less than the 20 minute no decompression limit, then your safety stop should be taken at fifteen feet depth for three minutes. What Happens If You Exceed No Decompression Limit? If you exceed the NDL, you must complete a safety stop at a depth of fifteen feet before fully ascending to the surface. If your dive time was less than five minutes over the no decompression limit, your safety stop should last eight minutes. Additionally, once you surface, you should wait six hours before attempting another dive. If you exceeded your no decompression limit by more than five minutes, your safety stop should last fifteen minutes. You should also wait at least twenty-four hours before attempting another dive. By exceeding your NDL, you put yourself at risk of developing decompression sickness. Also known as the bends, this condition occurs when nitrogen forms bubbles in your blood due to the change in pressure. If you have exceeded your no decompression limit, be aware of the symptoms of decompression sickness which can begin to occur up to 48 hours after surfacing. The most common symptoms include arm, leg, and joint pain. Rarer symptoms also include paralysis, extreme fatigue, shortness of breath, unconsciousness, and dizziness. If you are feeling sick after your dive and experience any of these, you should notify your doctor immediately as untreated decompression sickness can be fatal. How Deep Can You Dive Without Decompression? You can generally dive up to 40 meters (130 feet) without having to perform a decompression stop. But obviously the time spent at that kind of depth would be very limited. The no decompression limits for depths of 40 feet or less are longer than most divers would plan to stay at depth. Additionally, most scuba tanks only have about 45 to 60 minutes of air and the no decompression limit for 40 feet is more than twice that amount at 140 minutes. Emergency Decompression Stop An emergency decompression stop is required if you exceed your no decompression limit. This is basically a safety stop with a longer time at the fifteen foot depth. For decompression dives that last less than five minutes over the no decompression limit, the emergency stop must be made for eight minutes. For dives that last more than five minutes over the NDL, the emergency stop must be made for fifteen minutes. These emergency stops occur for longer than the three minute safety stops in order to allow the nitrogen in the blood to normalize to the pressure of the depth. If you change depths too quickly after being at the bottom for longer than the NDL, you risk the nitrogen forming bubbles in your blood causing decompression sickness. Final Thoughts No decompression limits are extremely important for scuba divers because they allow divers to understand how long they can stay at depth before risking decompression sickness. Dive tables are essential to help calculate no decompression limits, safety stops, and adjusted no decompression limits for multiple dives. The consequences of exceeding NDLs can be extremely severe so emergency stops are very important to perform. If decompression sickness sets in, the symptoms can range from joint pain and dizziness to paralysis and even death. Its essential to notify your doctor of any symptoms experienced within 48 hours of diving. My unbounded love for the oceans and everything it has to offer motivated me to pursue my passion and become a professional scuba diving instructor. I keep reading, exploring, and learning more about scuba diving and the underwater world all the time, so I'm excited to share my knowledge with fellow scuba enthusiasts and hopefully contribute a little to your development as a diver. I want people to fall in love with the oceans with as much passion as I have. Read more about me here. Nitrox, formally known as enriched air nitrox (EANx), is a breathing gas with a higher percentage of oxygen than standard air. For this article, we will refer to enriched air nitrox (EANx) as simply nitrox, which is the most common term adopted by scuba divers in place of the more technically correct yet longer name for the breathing gas. In recreational scuba diving, nitrox diving refers to diving with enriched air that contains oxygen levels between 22% and 40%, rather than air, which has an oxygen level of 21%. By elevating the percentage of oxygen and therefore suppressing the percentage of nitrogen in the breathing gas, divers extend their no decompression limits (NDL) by minimizing the amount of nitrogen accumulating in their bodies. This makes nitrox diving a popular choice among divers and is one of the many reasons why the PADI Enriched Air (Nitrox) Diver Specialty course is the most popular specialty course PADI offers. In this article, we will answer the most frequently asked questions related to nitrox diving. Nitrox diving is a type of recreational scuba diving that refers to breathing nitrox instead of regular air as the primary gas source. The elevated oxygen content decreases the nitrogen a scuba diver will absorb, contributing to extended no-decompression limits and potentially enabling longer dives (depending on the rate of air consumption). Also, nitrox may help diminish the risk of decompression sickness. The primary application of nitrox is to facilitate longer dives by decreasing nitrogen absorption. This permits divers to dive longer without reaching no-decompression limits and helps avoid decompression sickness by reducing nitrogen accumulation within the body. The maximum depth of dives during which the diver breathes nitrox is determined by the percentage of oxygen in the mix. Oxygen becomes toxic at high pressures, so the maximum depth for a nitrox dive is less than it would be on air for some mixes. The two most common blends for nitrox of 32% oxygen (EANx32) and 36% oxygen (EANx36). For example, the blend containing 32% oxygen (EANx32) has a maximum depth of 34 meters/112 feet. By contrast, if on air, the maximum recreational depth limit is 40 meters/130 feet. Oxygen toxicity is one of the reasons why divers must use oxygen analyzers and calculate dive plans accordingly when diving on nitrox. This is also why it's vital to become properly certified in the use of nitrox before using this breathing gas. Benefits of nitrox diving include longer bottom times, shorter surface intervals, and a reduced risk of decompression sickness. These benefits become more evident for those who make repetitive dives. In addition, many people claim nitrox can help decrease post-dive fatigue and help you feel energized after dives, although there is no scientific evidence linked to this. Nitrox has a few drawbacks when compared to air, although for many divers the positives outweigh the negatives. These disadvantages include: The need for an additional certification course The additional costs associated with nitrox cylinder fills The potential risk of oxygen toxicity at greater depths. Yes, diving with nitrox is worth it for many divers because it provides longer bottom times, shorter surface intervals, and a reduced risk of decompression sickness. You need to be certified as an Enriched Air (Nitrox) Diver to get nitrox fills at your local dive shop or to use nitrox during your next dive trip. In the Enriched Air (Nitrox) Diver Specialty course, you'll learn to use an oxygen analyzer, set up your dive computer for diving with different blends of nitrox, and prevent oxygen toxicity. You'll also get more information about specific cylinder requirements for nitrox fills and more. For certification as an Enriched Air (Nitrox) Diver, divers need to be at least 12 years old and have completed the Open Water Diver course. Many divers combine the Enriched Air (Nitrox) Diver Specialty course with their Open Water Diver course or their Advanced Open Water Diver course. Be sure to enquire about this at your dive shop of choice. The answer to this depends on your diving goals. Nitrox is probably a better choice if you want longer bottom times and shorter surface intervals when making repetitive or deeper dives. But diving air may be more suitable if you usually make shallower dives and/or want to avoid the additional training and fill costs. Although nitrox has several benefits for divers, it needs special training and certification to be used safely. The PADI Enriched Air (Nitrox) Diver Specialty course is designed to help you gain the knowledge and skills to safely use nitrox during your dives. This course covers everything from analyzing cylinder contents to planning dives with enriched air. The course can be completed dry and almost entirely online, although two optional and recommended dives are usually offered. If you want to increase your bottom time and have shorter surface intervals between dives, the PADI Enriched Air (Nitrox) Diver Specialty course is your next step toward fun and exciting underwater exploration. Divers have been diving with Nitrox for the last 25 year, but there's still a lot about diving with Nitrox that people don't understand. Many people think that diving with Nitrox lets you dive deeper than with regular compressed air, but this is just one of many misconceptions regarding diving with nitrox. Using nitrox will give you longer bottom time and shorter surface intervals You'll need extra training and education about diving with Nitrox before you should use it, but the following facts will give you a basic overview of what it's all about. Diving with Nitrox 101 Nitrox is an abbreviation of Nitrogen-Oxygen the primary content of the air we breathe every day. In recreational diving, we use the term Enriched Air Nitrox or EANx, for a breathing gas blend with a higher percentage of oxygen than the usual air we breathe. In the 1970s, the National Oceanic and Atmospheric Administration (NOAA) established standards for Nitrox diving. They created Nitrox-I containing 32% oxygen and Nitrox-II containing 36% oxygen. Back then commercial gas blending businesses made these blends available for the early adopters and the recreational diving training agencies adapted the NOAA dive tables and retained the Nitrox-1 and Nitrox-2 percentages as Nitrox-32% and Nitrox-36%. Later these labels became the EAN-32 and EAN-36 we see today. These days many divers are certified to dive with Nitrox and the costs of blending are much lower making it economically viable for dive centers to start blending nitrox themselves. [the_ad_group id="1249"] What are the effects of diving with Nitrox? In the majority of dives, it is the amount of nitrogen that is absorbed that dictates your bottom time or no decompression limit (NDL). As the pressure increases the deeper, you dive, the nitrogen in the air you breathe dissolves into your bloodstream. Your bottom time is limited as a result of this absorption of nitrogen. So, as you dive deeper and in some cases longer, your body will absorb more nitrogen. The no-decompression limit will correlate to how much nitrogen your body can safely absorb before you have to perform mandatory decompression stops. The biggest benefit of diving with enriched air Nitrox is that it will slow down how much nitrogen dissolves into your blood on a dive. This is the result of there being less nitrogen in the mix to be absorbed while you breathe. Put simply, the higher the percentage of the enriched air Nitrox blend you're breathing, the more oxygen you have that's replacing nitrogen. Death by Nitrox Even though there are plenty of great benefits that come with diving with Nitrox, you should also be aware of the risks. You should know that, when you breathe oxygen under pressure, it can become toxic, so you may not be able to dive any deeper than you would on regular air. Remember that 21% is the level of oxygen in the regular air we breathe, and this turns toxic when you reach depths that are greater than the recreational limit. So if you have a higher percentage of oxygen in your nitrox mix, the toxic level can occur even at a shallower depth. Do you need a specialty training to dive with Nitrox? Yes, you do! As mentioned before diving with Nitrox does have some additional risks. The more severe is the risk of oxygen toxicity. Under pressure, oxygen can become a toxic and deadly gas. If you would exceed the 1.6 ATA (a measurement of partial pressure) point when breathing an EANx gas blend your body will start to react, the reactions are rapid and can be fatal. Each diver's tolerance will to oxygen toxicity will differ, but convulsions that can cause you to lose your regulator and drown are almost guaranteed at 2 ATA. Feel free to check out our Scuba Dive partners anywhere in the world for (Nitrox) training, packages or guided trips: [the_ad_group id="1250"] Symptoms of oxygen toxicity Muscle twitching and spasm, notably facial muscles Nausea and vomiting Dizziness Vision (tunnel vision) and hearing Difficulties (tinnitus) Irritability, confusion, anxiety and a sense of impending doom Trouble breathing Unusual fatigue Incoordination Convulsions Unfortunately, these symptoms and signs may not occur in any particular sequence, and can occur with little or no warning. Oxygen toxicity won't be a problem if you adhere to the maximum depth you are trained to dive too. Stay well within your limits at all times!! Each gas blend has a Maximum Operating Depth (MOD) that you can safely descend to. While 1.6 ATA is the declared safety boundary, most divers use 1.4 ATA in their MOD calculations On air to reach the 1.6 ATA, you would have to go down approximately 258 feet, which would be a foolish thing to do as you probably would be narced like a drunk hoot owl by the time you reach 150 feet. 1.6 ATA can be reached around 30 meters/100 feet if you are using EAN-38. If you breathed pure oxygen (100%), on a dive you would reach 1.6 ATA in 13 feet, 4 meters. This why it's vitally important that you take the right nitrox courses to learn about how to determine the maximum depth you can go to by using the partial pressure and percent of oxygen in the mix you're using. Also read: Nitrogen narcosis, what you need to know to keep diving safely What do you learn in the Enriched Air Nitrox course? The course covers the understanding and use of: Managing oxygen exposure How to analyze the content in your tank Enriched air tables Enriched air compatible equipment Gear markings Tank filling How to use your dive computer for diving with nitrox Nitrox must be analyzed using a Nitrox analyzer before you use it which you can typically borrow at the dive center. It is your responsibility to analyze your blend and to enter it into an acceptance log. During the nitrox course, you will learn how to do so. You analyze the gas blend to double check if it contains the mix you requested and you used to plan your dive. When you planned your dive based on an EANX-36 mix and the blend in your tank is EANX-28 you could get in trouble underwater because the maximum-operating depth will be different from previous calculations, so recalculate and plan your dive accordingly. Nitrox and Air Dive tables Oxygen can be a dangerous gas Oxygen quickly oxidizes with other materials that can cause an explosion. And therefore, any scuba gear which will be used to dive with Nitrox should be Nitrox compatible. When filling tanks with a Nitrox blend, the tank is exposed to pure oxygen that's diluted later using regular air. If cylinders aren't treated to withstand this high level of oxygen, they can explode. Make sure that all parts of your scuba tank that come in contact with pure oxygen are "oxygen clean." Tanks used for Nitrox and those used for regular air are NOT interchangeable. That's why a nitrox cylinder will have stickers and decals that make them look different from regular air-filled tanks. [the_ad_group id="1251"] Why should you consider diving with Nitrox? Divers prefer to use diving with nitrox for a variety of reasons. One of the primary reasons, though, is because it gives you the ability to stay at depth a bit longer, thanks to the higher no-decompression limit. Because you're breathing a lower amount of nitrogen during the dive, your body is absorbing it slower than it normally would. To illustrate this concept, a scuba diver would have a no-decompression limit of about 56 minutes at around 18 meters of 60 feet if he or she were breathing normal air. If that same scuba diver were using a 36% nitrox mix, even at the same depth, his or her limit would now be 130 minutes. Typically, enriched air blends are best used at depths that range from 50 to 100 feet. If you're diving in shallower water, the no-decompression limit is so long already that you won't need to extend it. Because there's less nitrogen that you'll need to off-gas, you can get back into the water more quickly than another diver who dove with you but used regular air. On top that, nitrox can also serve as a safety buffer when used while adhering to normal air tables, profiles, procedures, and computers. When you plan your dive based on the normal air tables / or air settings on your dive computer and you use Nitrox instead you plan your dive more conservative reducing the risk further of DCS, but keep in mind the MOD of the gas blend you use. The risk with this type of conservative dive planning is that you dive to deep, with nitrox and suffer from oxtox. Some divers have also reported that diving with enriched air leaves them feeling less tired after a dive, presumably because of the increased oxygen supply to their muscles. Scientists say there is no scientific proof that this happens but agrees it does seem to be true. Another benefit to using nitrox lies in the fact that surface intervals can be shorter too. There's an even greater reduction in the risk of getting ill from decompression sickness, so it's highly valuable to those who are more susceptible to it, including individuals who are older, overweight, injured, fatigued, or have dealt with DCI in the past. Always remember that nitrox doesn't improve your air consumption, nor does it give you immunity when it comes to decompression illness. Always check your gauges, monitor your depth, and restrict yourself to your personal limits just as you would on any other dive with regular air. Once you're well versed on the benefits and potential drawbacks of nitrox, you can use it to make the most out of each and every dive by spending more time beneath the waves and less time waiting to get back in the water between dives. This article is published by The Scuba Page, the online magazine for Scuba Dive lovers around the world. The Scuba Page is part of RUSHKULT: the online booking platform for adventure sports. Visit the RUSHKULT platform to book your next Scuba Dive training, guided trip and accommodation. [the_ad_group id="1252"] The depth you can dive with nitrox dependents on the percentage of oxygen you have mixed in with your air. The most common enriched air nitrox mixes for scuba divers is 32% and 36% oxygen, but how deep can you dive with this amount of oxygen? So how deep can you dive with nitrox? With 32% nitrox you can dive to a maximum depth of 33 metres (110 feet). Whereas with 36% nitrox this reduces to 28 metres (90 feet). Nitrox extends your dive time and in some cases is nearly double that of atmospheric air at the maximum dive depths for nitrox. The best way to do more diving is to book yourself on a scuba diving liveaboard. You can check the latest and best deals on liveaboards using the following window: The depth you can dive using nitrox is dependent on the percentage of oxygen in your air. The maximum Enriched Air Nitrox you can use is 40% oxygen. To find out more about nitrox, what it is and what the advantages are of diving with nitrox, please have a read of this article: What are the advantages of nitrox diving (Pros and cons of nitrox diving) But in order to find out how deep can you dive with nitrox, please have a look at the nitrox comparison table below. I thought this was the best way to answer this question. How deep can you dive with nitrox comparison table Nitrox Mix PercentageMax Depth MetresMax Depth FeetNo Decompression Stop TimeMax Time at Depth On 21% Oxygen Atmospheric Air PADI Dive TablesMax Time at Depth On 21% Oxygen Atmospheric Air BSAC Dive Tables 28% Oxygen40m130f15min10min12min 29% Oxygen37m120f20min13min13min 30% Oxygen37m120f20min13min13min 31% Oxygen33m110f25min16min17min 32% Oxygen33m110f30min16min17min 33% Oxygen30m100f39min20min20min 34% Oxygen30m100f39min20min20min 35% Oxygen28m90f48min25min20min 36% Oxygen28m90f48min25min20min 37% Oxygen28m90f48min25min20min 38% Oxygen24m80f60min30min30min 39% Oxygen24m80f74min30min30min 40% Oxygen24m80f74min30min30min What is the deepest you can dive with Nitrox: Notes: The depths and times in this table have been based on BSAC/PADI air dive tables and the National Oceanic and Atmospheric Administration NOAA nitrox tables. This has been done for comparison purposes only and this should not be used to plan or carry out your dive. Please use the tables associated with your diver training or use a dive computer for your dive times. In many cases in the above nitrox comparison table, the no stop decompression dive time at the maximum depth allowed for the percentage of oxygen mix is almost double that of 21% oxygen mix. If you're not too keen on doing decompression stop dives, but you're also frustrated at the short amount of time you can spend as say 28 metres (90 feet), if you use a 35% oxygen mix, you increase your dive time from 25 minutes to 48 minutes. Having given you the full list of oxygen percentages from 28% through to 40%, you are more likely to be offered either a 32% or a 36% mix from most dive shops. With both these common nitrox mixes, you can do most dives up to a maximum of 33 metres (110 feet) on the 32% mix and 28 metres (90 feet) on 36% nitrox. The reason why you should dive with nitrox is because it extends your dive time. As shown in the above nitrox comparison table. In many cases this is nearly double that of atmospheric air (i.e. 21% oxygen) at the maximum dive depths for the level of nitrox. The other reason why many scuba divers site using nitrox, is for safety reasons. Some divers plan their dive based upon diving with atmospheric air at 21%, but then dive using say 32% oxygen. However, they must then make sure they don't exceed the maximum depth limit for 32% nitrox to avoid suffering from oxygen toxicity. Diving in this way creates an extra decompression buffer. This is due to the fact that where the oxygen percentage is higher, conversely the nitrogen mix is lower. When the nitrogen content is lower in the air you breathe at depth and under pressure, the less nitrogen is absorbed by your body and tissues. As a consequence of this, your decompression time will be shorter and you'll have much less nitrogen in your body when you finish your dive than you would if you had dived on 78% nitrogen. Further more, your dive interval will be shorter too, as you'll have less nitrogen to release in-between dives. You may also like to read about the pros and cons of Nitrox diving. There are an equal 7 pros vs cons. I'd love to hear from you. Tell us about your adventures of diving and snorkeling, in the comments below. Please also share your photos. Either from your underwater cameras or videos from your waterproof Gopro's! If this article hasn't answered all of your questions. If you have more questions either about snorkeling or scuba diving (or specifically about how deep can you dive with nitrox), please comment below with your questions. There will also be many more articles about scuba diving (and snorkeling) for you to read and learn about these fabulous sports. Have fun and be safe! How Deep Can You Dive With Nitrox? (Why Should I Dive With Nitrox?)