Revista

DIVEOPS

2024 - Edition nº 19



ROV Operation
in the Brazilian Navy

MAIN DIVING MISSIONS

UNDERWATER NAVIGATION

MEGALODON BOOK LAUNCH

ROBERTO MARINHO
A pioneer in diving

REVISTA DIVEOPS

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EDITORIAL

It is with great pleasure that we present the 19th edition of Diveops, reaffirming our commitment to promoting and valuing the diving universe in Brazil and abroad. This special edition celebrates Diver's Day, observed on December 18, a date that honors the courage, dedication, and adventurous spirit of all who venture into the depths of the sea, whether they are professionals, military personnel, or recreational divers.

NOTICE:

"All reports published in this magazine are the sole responsibility of their respective authors and do not necessarily reflect the opinion or editorial position of the publication. The authors are fully responsible for the content, accuracy and authenticity of their texts, as well as for the opinions expressed in the reports."

Contato: revistadiveops@gmail.com

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LUIZA ALVES
EDITORA-CHEFE

The magazine DIVEOPS was born out of the need for a publication focused on the military, public safety, and commercial diving sectors. For this reason, its editorial line is guided by the expertise of divers who are references in their fields and who collectively form our Advisory Board.



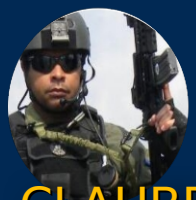
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Main diving missions in the Navy

Description of some of the most important and challenging missions

by: William Freitas



After more than seventy years of dedicated service to the Brazilian Navy, the "K" Division not only met the needs of the institution, but also performed a series of vital functions for Brazilian society.

At a time when resources were limited and equipment was rudimentary, the "K" Division managed to fulfill its role throughout its history.

Since its origins, as an integral part of the Submarine Base, the "K" Division has been fundamental in the support, relief and rescue of various naval assets. Over the years, its actions have stood out in a variety of activities, although it is impossible to describe them all in detail. However, to provide an overview of the importance of this work for both the country and the Navy, it is relevant to highlight some of the tasks performed.





It is important to emphasize that the “K” Division has a robust history of diving operations that are essential to its safety and effectiveness, although they also carry significant risks that must be carefully managed. The success of these missions depends not only on the individual skills of the divers, but also on a cohesive and well-structured team.

The following examples are arranged chronologically, highlighting the contributions of these operations over the decades:

1930: The Brazilian Navy begins hyperbaric chamber treatments for military and civilian victims of diving accidents throughout the country.

1956: Execution of the first underwater cutting using oxyacetylene techniques by divers from the Brazilian Navy's "K" Division on a sunken dredge in Rio de Janeiro.

1960: Rescue operations for victims of a mid-air collision between a DC-3 aircraft from Real Transportes Aéreos and a DC-6 aircraft from the U.S. Navy over Urca Beach, Rio de Janeiro.

1962: Divers repair blocked turbines at the Três Marias Hydroelectric Plant, followed by operations to fix the pipeline supplying water to the Palácio do Planalto in Brasília.

1966/1967: Recovery of reinforced concrete structures in Antonina, Paraná, and establishment of the Tactical Demolition Unit (UDT), operational until 1972.

1968: Rescue of crew members trapped in the engine room of the sunken tugboat *Patrão Mor Araújo* in Rio de Janeiro.

1978: A similar rescue to that of 1968, this time involving the tugboat *Draco*, which sank in Rio de Janeiro.

1984: Salvage of the tugboat *Gulf Fleet 20* off the coast of Maricá, Rio de Janeiro, by a team of divers.

1989/1990: Recovery of bodies and the salvage of the *Bateau Mouche IV* tourist vessel after its sinking near Contunduba Island and Morro do Leme in Rio de Janeiro, along with the recovery of an amphibious "lagarto" vehicle in Salvador.

Rescue of bodies and salvage of the tourist vessel "Bateau Mouche IV"



2000: Participation in the refloating work of the Tonelero S-21 submarine in Rio de Janeiro;



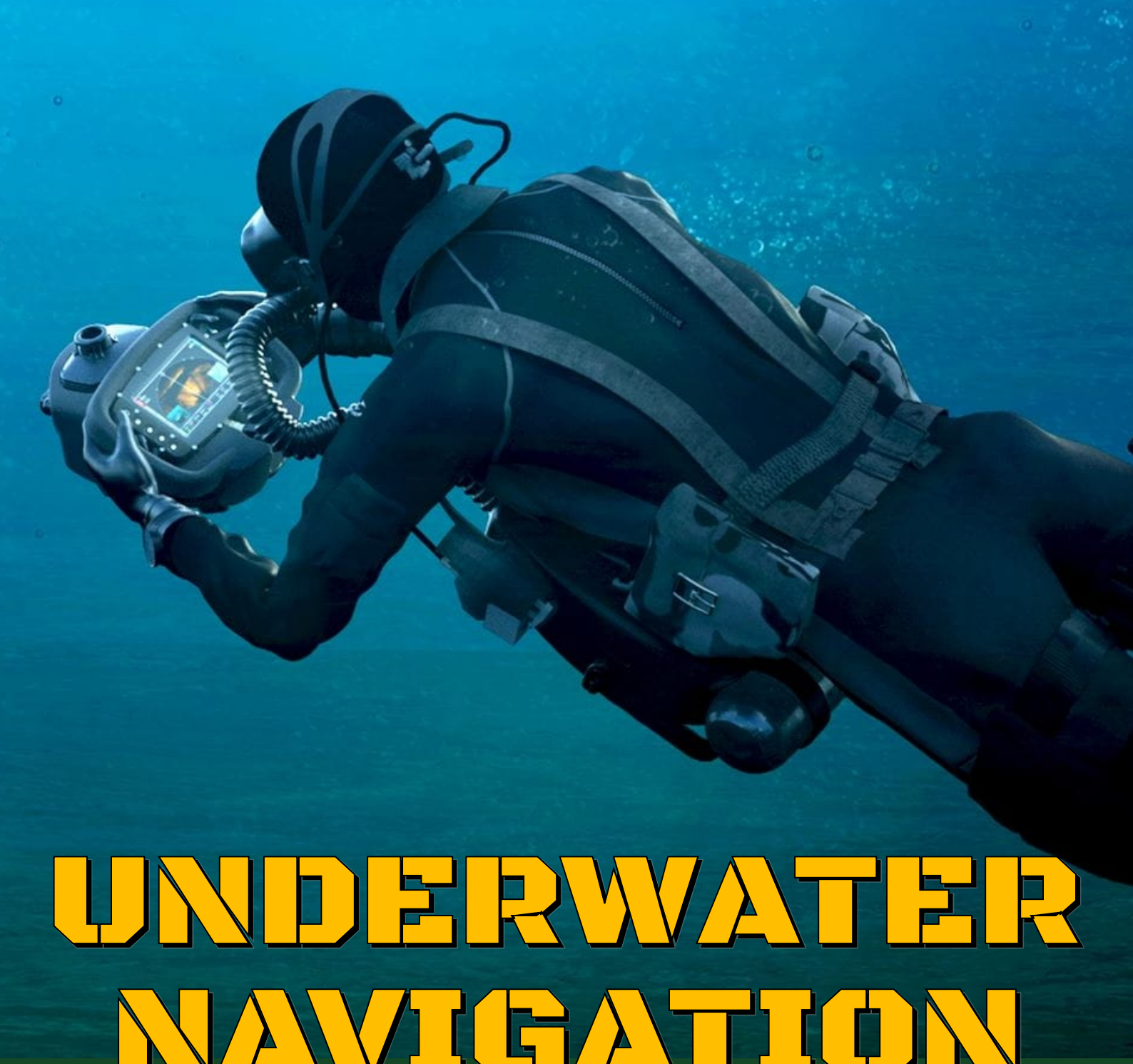
2006: Rescue of a Pantera helicopter that crashed in the Jaguari dam in São Paulo; and

2014: Rescue of three bodies remaining from the shipwreck of the vessel "Travessia do Mar Vermelho" in Sento Sé, Bahia.

2022: Refloating of the Miguens speedboat.

Diving is a vital strategic capability for the Brazilian Navy, playing an indispensable role in a wide range of naval operations. Whether through vessel maintenance, reconnaissance operations or rescue missions, divers are key players in the execution of tasks that ensure operational effectiveness, maritime safety and the protection of national interests in the maritime domain.■


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UNDERWATER NAVIGATION

by: DIMAS TOSCANO

The Navigation success depends on the diver's mastery of fundamental skills and not on shortcuts that the most modern equipment or miraculous solutions can offer.
The above idea must be absorbed by all divers: from beginners to technicians, including military and professional divers. We constantly hear stories of people lost in forests, jungles or savannas.

Now, imagine becoming disoriented in an environment for which humans are not naturally adapted: the aquatic environment, which requires constant concentration on the laws of physics, physiology, buoyancy control, depth and time control, and respiratory gases.

More important than having tools anchored to the equipment is having cognitive skills to your advantage. When all else fails, we can use basic accessories such as a depth gauge, exhaled bubbles or the mask itself, facilitating navigation and being crucial to the diver's survival. It is common to see divers who, when quickly planning their activity, get lost upon entering the water and need to continually return to the surface to orient themselves. This increases the risk of pressure-related problems, such as decompression sickness and gas expansion injuries.



Skilled divers combine the use of a compass with natural references and nautical charts, as well as understanding underwater currents.

In open water diving, it is possible to use reference points or checkpoints to go from one objective to another, point-to-point, whether they are: a coral ledge, a rock formation, points of a shipwreck or distinct vegetation. These are excellent ways of orienting themselves in environments with good visibility. However, an excessive number of control points can make it difficult to memorize them.

On the other hand, places with low visibility make it difficult to use natural navigation techniques. Underwater disorientation can cause anxiety or panic, even in the most experienced divers, resulting in an uncontrolled ascent or descent, increasing air consumption and even leading to the separation of the diving pair in extreme cases. First, to avoid disorientation, you can use your depth gauge and the depth around your target to figure out where you are and where you need to go. This can be as simple as swimming with a reef on one side when you start and the other on the way back. Another way is to use the contour lines that are represented on nautical charts and maps to depict the shape of the land and ocean floor. Using these lines, you can get a three-dimensional picture of what the underwater area should look like. For example, the ripples in the sand on the seabed form patterns that run parallel to the beach. By swimming perpendicular to them, the depth gauge will indicate whether the diver is approaching the shore or moving out into the open ocean.

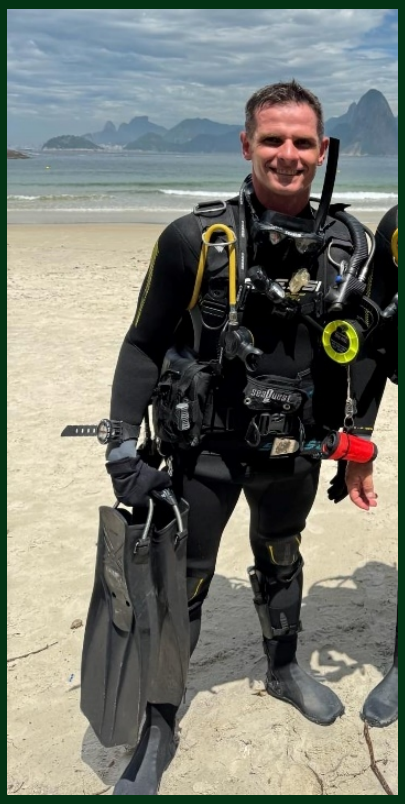

UNDERWATER

One of the most stressful factors can be the difficulty in identifying the direction of the surface. A practical tip is to observe the exhaled bubbles, which always rise. If visibility is extremely low or the current is strong, and it is not possible to identify them, an alternative is to partially flood the mask. The water will accumulate at the bottom of the mask, allowing the diver to know where the surface is.

Safe diving begins long before you enter the water, mastering the basics. You and your dive buddy should study the site and the map or nautical chart to familiarize yourself with the target and the surrounding area, resulting in good navigation. Valuable information about the site, its characteristics, depths, currents, moon phases and surrounding features will help you build a good dive plan, outlining what the dive will be like and what to do if you or anyone else gets lost.

Whatever navigation techniques you follow, use them from the beginning of the dive until the end. ■





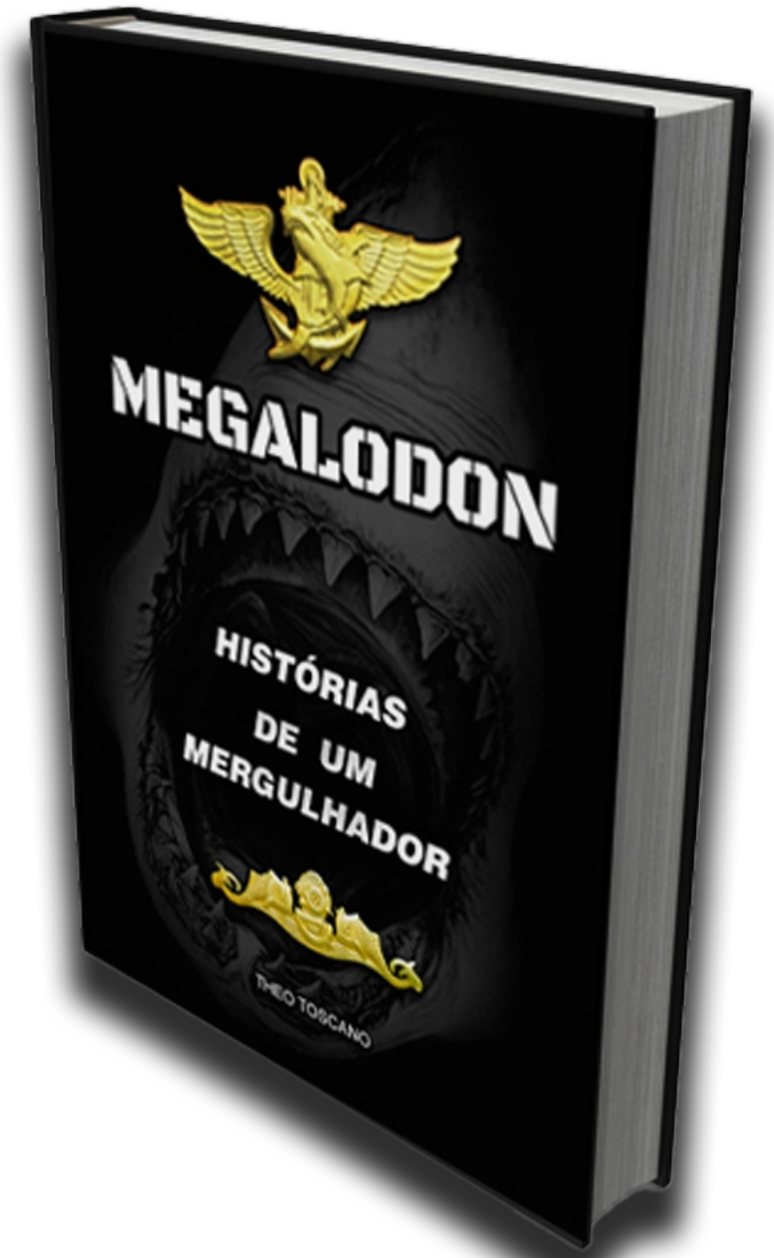
DIMAS TOSCANO

MEGALODON
STORIES OF A DIVER

by: Luiza Alves

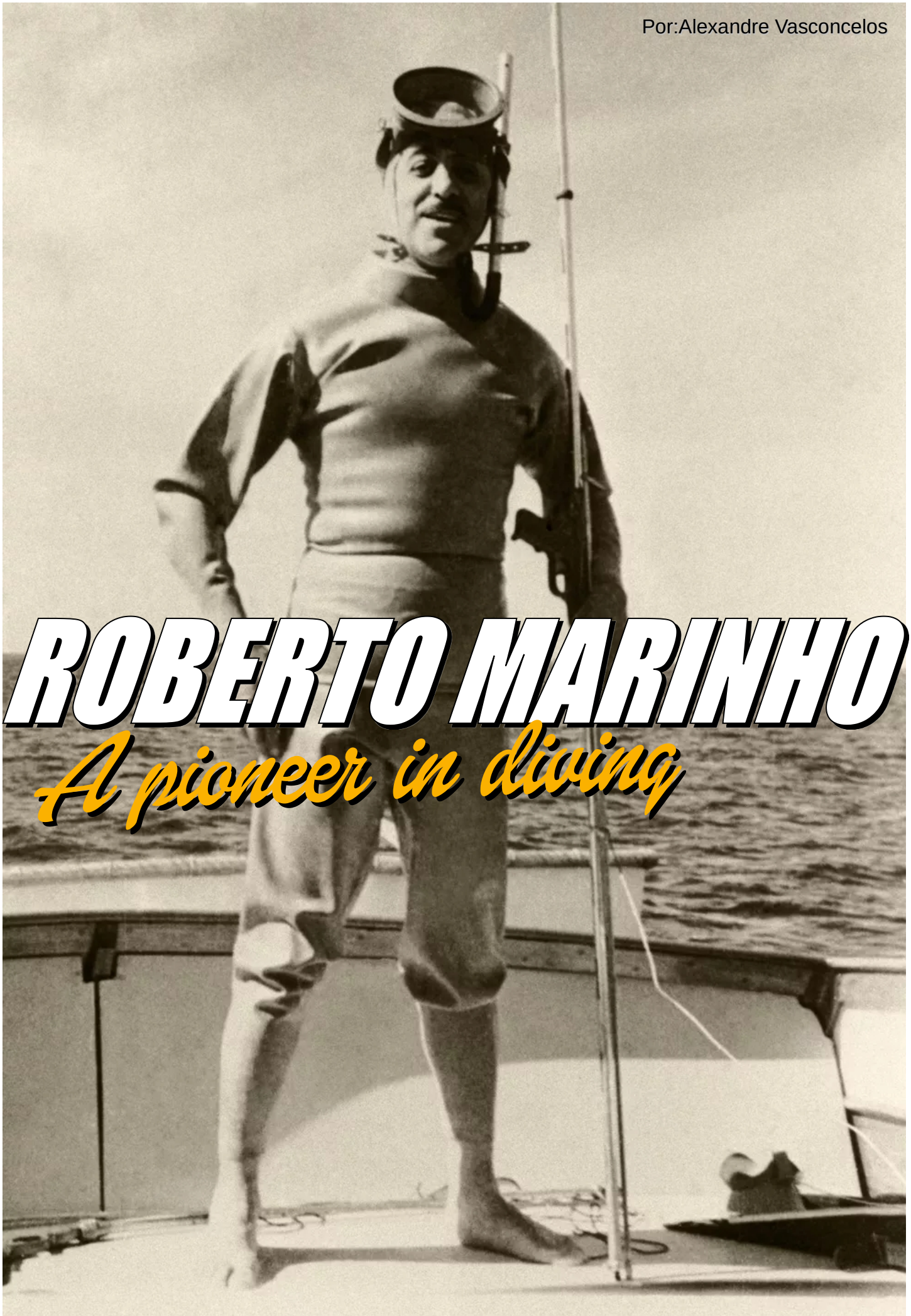
The The book Megalodon, written by Theo Toscano and co-authored by Alexandre Vasconcelos, marks a new phase in military literature. The work presents a first-person narrative that tells the life story of Commander Toscano, deeply intertwined with the history of diving in Brazil, especially combat diving. Megalodon fills a gap in military literature, being the first book written by a combat diver.

It is a realistic perspective, written by someone who lived the experience, which leads the reader to feel immersed in the world of diving as they read through the pages of this work.



"Unmissable, the first book written by a Combat Diver. The story told by the person who wrote it!"

Por:Alexandre Vasconcelos



ROBERTO MARINHO

A pioneer in diving



In the month in which we celebrate Diver's Day, nothing is more fair than highlighting those who helped and, why not say, wrote the history of diving in Brazil. As is tradition, the December edition of Diveops magazine has the duty to record and remember our history and in this context, it is out of a duty of justice that we bring to the reader the story of the diver, Roberto Marinho, who in the 1950s, took his first steps in an activity that would change his life forever, when he was introduced to spearfishing by his friend and partner Victório Barredo.

According to Roberto Marinho's biography, written by journalist Pedro Bial, Marinho sought out Victório after becoming interested in an underwater vehicle while watching the TV series Underwater Adventures, starring Lloyd Bridges. In the series, the actor played the role of US Navy diver Mike Nelson, who lived independently aboard his boat, "The Argonaut", embarking on dangerous operations, ranging from rescuing children in remote areas to salvaging nuclear projectiles.





Imagem: Arquivo/Acervo Roberto Marinho

This was the beginning of Roberto Marinho's interest in diving equipment. It is worth noting that, in the 1950s, diving in Brazil was just taking its first steps. There were no national companies that developed diving equipment on a large scale, and enthusiasts who wanted to acquire equipment suitable for the activity had to resort to importing it, which for Roberto Marinho was no problem at all.



Imagem: Arquivo/Acervo Roberto Marinho

As he gained experience in spearfishing, the activity increasingly occupied his attention. This passion led Roberto Marinho to invite Victório Barredo to work with him, synchronizing their schedules and allowing them more time to practice the sport that had become a passion in their lives. Barredo, fluent in English, German, Spanish and French, became a trusted man for Roberto Marinho, helping him translate texts, news and conversations.

During his adventures as a spearfisher, Dr. Roberto initially designed some pieces of equipment, such as rubber suits, which could be handcrafted for him. Later, these pieces of equipment were replaced by imported ones. This initiative makes Roberto Marinho one of the first Brazilians to develop equipment on national soil, a feat practically unknown in our history.



Imagem: Arquivo/Acervo Roberto Marinho



A lancha Miss Globo, década de 1960 — Foto: Arquivo/Acervo Roberto Marinho

Diving Club

It is worth remembering that recreational diving and training agencies, as we know them today, were in their infancy at that time. In Brazil, the only entity with any kind of regulation was the Brazilian Navy; therefore, training and rules were defined by diving clubs, which years later were replaced by the certifying agencies we know today. Roberto Marinho was also one of the founding members of the Clube dos Marimbás, where, in 1952, the Associação Brasileira de Caça Spearmarina was born. It is important to note that the CMAS, an international entity founded by Jacques-Yves Cousteau, would only be created in 1958, reiterating the pioneering spirit of Brazilians in the activity.



Imbued with many responsibilities and, unlike the great spearfishing champions of the time, Roberto Marinho never had the opportunity to dedicate himself exclusively to the sport he was passionate about. During his dives, he became known among his companions for his preference for hunting in the salt marshes (a region with foam where the waves crash against the rocks) and continued diving until he was over eighty years old, thanks to his exceptional physical condition, the result of a disciplined and dedicated life. His contribution to diving in Brazil may have been somewhat overshadowed by his relevance in the country's history, but he can in no way be forgotten by Brazilian divers. ■

Imagem: Arquivo/Acervo Roberto Marinho

December 18th

Diver's Day

By: Alvaro de Castro Neto



Our gathering was opened by the host SO MEC-43 SOUZA, who has been successfully organizing and bringing together our people at ARES São Gonçalo (CMN), since the end of the pandemic, special men, formed in pairs over time since our graduation as scuba divers and professional divers, thus having provided relevant services to the FFAA, in the area of diving operations, special operations, rescue operations in risk areas throughout the national territory, north to south / east to west of this immense country called BRAZIL.


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We are special men, pairs united by mutual trust, in missions where human life is in our hands and the success of the mission depends on our training, selflessness and commitment. In his closing remarks, the dean of our brotherhood, Commander Toscano, who is close to 8.4 years old and holds the record for hours dived in the Brazilian Navy to date, thanked our Host for this annual meeting, which brings together military diving professionals and other diving enthusiasts, declaring that if an individual “blew a bubble underwater” and performed underwater work, he is part of our team as a diver; he praised Souza's work in promoting and presenting each of our pairs who had a sacred commitment to fulfilling the mission and left behind a legacy of friendship over the years working for the benefit of society.


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Then came the words of Commander Érico, who praised the moral and professional qualities of those present and urged all those present, as well as those who were absent and had already departed for the spiritual plane, to maintain the bond of unity and friendship and to help the families of our partners in the event of the absence of the valiant diver absent from our earthly plane. ■



Public Safety Diving with specialization in Ship Hull Scanning and ROV Operations in the Brazilian Navy.

By: Ronaldo Possato



During the week of June 16-22, a Workshop was held at the Almirante Castro Alves Submarine Base. The police diving team from the COE (Special Commands and Operations) of the Military Police of the State of São Paulo, which has as one of its activities the hull sweep diving of ships, operating in this scenario since 2014, with numerous seizures in the Ports of Santos and São Sebastião, came



to Rio de Janeiro and gave a workshop with qualifications in Public Safety Diver, Hull Search and ROV (Remotely Operated Vehicle) Operator, through the American IANTD certification body, to the CIAMA, K Division and, specifically, ROV personnel for NEPOM RJ of the Federal Police.

It was a very productive period, with a lot of exchange of experiences between the forces, greatly enhancing the activity against organized crime.

Academic instructions were given in the classroom, focusing on international doctrine, equipment configuration, underwater investigation, collection and evidence recovery, search and sweep operations focusing on ship hulls, use of intelligence and study of organized crime in international drug trafficking, modus operandi of criminals, case studies, ROV operations in searches and evidence collection, diving in contaminated waters up to category 3, also covering all the theoretical content of these courses.

Then, instructions were given in confined waters, in the CIAMA pool, where there was an opportunity to familiarize ourselves with the PSD equipment, search patterns and mainly the operation of the ROV, focusing on piloting, use of the grapple and multibeam sonar. Finally, we began the open water diving phase, with simulations on the hulls of the Navy's own ships, with PSD and Dependent equipment, decontamination of divers and equipment, hull search system and ROV support.

A real search operation was carried out in the Port of Rio de Janeiro, on a cargo ship with the characteristics of a ship used by drug traffickers to install parasites with cocaine. The hull was fully prepared for the diving operation, involving several agencies in this phase, together with the crew, the security of the location, and finally the search operation, using bases with PSD equipment, dependent equipment and ROV.

On the last day, a practical piloting and evidence recovery test was carried out together with a corpse packing phase.

The high technical level of the CIAMA and K Division divers provided enormous agility in all phases of the courses. Divers with enormous technical capacity and experience made the course without any complications, achieving all the proposed objectives in a safe and technical manner.



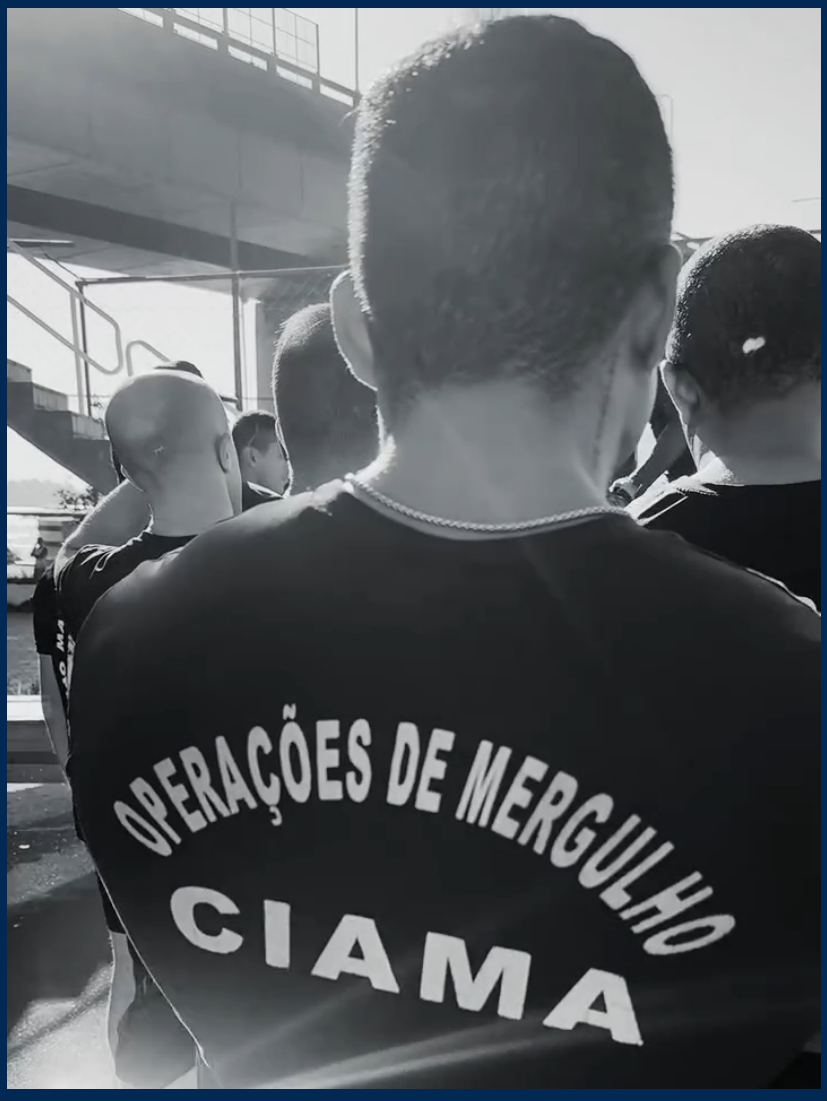


The COE diving team also had contact with a wide range of dependent diving equipment, onboard operating systems, saturation diving, underwater tools, and especially with the Navy's Operation system, which greatly expanded the group's knowledge.
Initiatives like these unite forces, bring operators closer together, break down bureaucratic barriers, improve safety techniques and procedures, and strengthen the fight against narcoterrorism. Due to the huge success of this week, new workshops are already being planned for later this year.
The ROV Operator Course is a launch by IANTD, aimed at operators who work in PSD teams of the police, firefighters, armed forces or directly involved in public safety. It is not a prerequisite for this course to be a diver, since the role of ROV operator is generally better performed by aerial drone operators.

police officers, due to the skills already acquired in remote piloting and use of this technology.

It is a program of at least 20 hours of academic training, confined waters and open waters, with simulations and tests.

This course used an American ROV from Blue Robotics in heavy configuration, equipped with multibeam sonar and front gripper, being operated inside a Van, advanced command base,




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Equipped with computers and numerous monitors, which can be used to provide greater situational control, showing images from the ROV, sonar, aerial drones, and divers' cameras.

Work-class ROVs are already replacing divers at great depths, with equipment weighing hundreds of kilos, equipped with multiple mechanical arms, sensors, and large surface apparatus. They are different from the observation ROVs used in Public Safety Diving, which are compact, with only 1 claw with few movements, and some sensors, are easy to pilot and respond quickly in operation. They perform dangerous work such as operations in contaminated waters, confined environments, great depths, or even strenuous work, such as places with currents and extensive search areas, increasing the safety of the operation and saving the diver, who can never be replaced, but will have his physical integrity, and even his life, saved with the use of this tool. ■

Não seja apenas mais um

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Frogmen in the RS Flood

By: Antonio Roberto Vigne

How did the Frogmen act during the RS Flood?



At EXPOEX 2024, Engineering explains how the actions were carried out during Operation Taquari II, during the Floods in RS.

In an interview with Lieutenant FOESTER, from the 3rd Combat Engineering Battalion (3° B E CMB), during the 47th EXPOINTER, in Esteio, Rio Grande do Sul, the first after the floods in Rio Grande do Sul, some information was provided that clarifies Fake News about images shared on social media during the period.

Let's look at the proven facts: In May 2024, an atypical weather event occurred that flooded most of the state of Rio Grande do Sul and destroyed a large part of the state, with several areas being affected, including the area where both EXPOINTER and EXPOEX usually take place. No one expected such a quick recovery and there was discussion about whether it would actually be possible to hold both in 2024, given the scale of the tragedy that struck this state.

However, both fairs took place and were a great success in terms of public and activities, demonstrating the resilience of the people of Rio Grande do Sul in the face of the extreme diversities imposed on them, regardless of their nature and scale! They were FAIRS OF OVERCOMING!

> ***"The Assis Brasil Exhibition Park, in Esteio (RS), was taken over by the flooding of the Rio dos Sinos, due to the heavy rains that affected Rio Grande do Sul last week. The waters occupied the 141 hectares that host agribusiness events, especially Expointer, the largest agricultural fair in Rio Grande do Sul." Source: Google – May 6, 2024.***

According to Lieutenant FOESTER, it was necessary to use frogmen, mainly in the navigation part, with lifeboats, which were used in their entirety,

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that were used during the floods and whose main focus during that period was precisely the rescue by the engineering department.

According to him, there was no immediate need for divers from the Armed Forces, as it was impossible to use them, due to the fact that there were strong currents in murky waters during that period, which made any action of that nature impossible during the occurrence of this event. After the events, divers from the Military Fire Department went into action to rescue fatal victims, but not the Military Forces, who acted specifically at the time of the emergency.

There was a Fake News during the period that we took the opportunity to clarify here in this report. Obviously, voluntary participation played a large role in the rescue of people, but it is necessary to clarify that while a jet ski or jet ski can only rescue one person, a military boat or dinghy can rescue up to twelve people at once. And not only were 100% of the military boats used, but the bases for water bridges were also used, initially as boats by the Engineering department and later in the construction of temporary bridges to connect locations without access due to the destruction of water crossings.





Taking advantage of this resource to save lives. Some videos were released giving the impression that these bridge bases were all that was available for the military to use. This is not true! This discourse belittles and disqualifies the Military Engineering, which was extremely active and saved thousands of lives during the period throughout the State, going where no one else could go. In some places, there was looting and control by criminals who stole Jet Skis, Jet-Skis and Boats from Civilians, and there are even reports of confrontations between them and the Military and the Military Police during this period. In many of these places, only the Military Forces and Police Forces had access to rescue people from the double danger of death from the water or from criminals who were opportunists who caused other people's tragedies. The Military acted like true heroes, putting their lives at double risk during this period, and Operation Taquari II in RS was in fact a War Operation without national or international historical precedent! In this sense, Engineering played a fundamental role in the successful work carried out, without which, there would most likely be a state of chaos and with many more fatalities than those recorded in this sad period in the history of Rio Grande do Sul and Brazil. ■

























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The primary mission of the Hall of Honor is to pay recognition and tribute to all men and women who have distinguished themselves in a notable manner, contributing significantly to the advancement and enrichment of diving in Brazil.

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LUIS OLIVEIRA
JONE VIEIRA TILLI
KADU PINHEIRO
RONALDO POSSATO
SANDRO AZEVEDO
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