



THE DEEP FRONTIER EXPEDITION: Exploration of the World Abyss

An Extended Program to Explore and Study the
Deep Sea using the Mir 1 and Mir 2 Submersibles



A Joint Expedition between Deep Ocean Expeditions and the P.P. Shirshov
Institute of Oceanology, Russian Academy of Sciences, Moscow



Your Opportunity to Join an Unparalleled Adventure...

The Deep Frontier Expedition is an ambitious and groundbreaking voyage that will encircle the globe and explore the deep waters of five oceans. The expedition will take place aboard the Russian research ship RV Akademik M. Keldysh. Owned and operated by the P.P. Shirshov Institute of Oceanology, Keldysh is the mothership to the remarkable Mir submersibles. Each Mir can dive to 20,000 feet, giving each submersible access to 97 percent of the world seafloor.

This is **your unique opportunity** to personally explore the abyss, to become a modern-day adventurer who can contribute to meaningful science and discovery in the deep - a realm where virtually every submersible dive yields new insights about the planet we call home.

The mission? A worldwide voyage of scientific discovery and ocean exploration of a scope and scale rarely attempted in modern times.

The goal? To embrace scientific research, the quest for knowledge, and popular interest in the oceans - at a time when all three are viewed as vitally important for our shared futures.

Participating in the voyage will be a dynamic, revolving team of deep-sea scientists from many nations. Accompanying them for many legs of the expedition will be filmmakers and educators. They will engage in filming and documenting the ship's explorations for the widest possible audience.

The diverse itinerary of the Deep Frontier Expedition encompasses many of the world's most important and fascinating deep-sea environments, geological features, archaeological and historical sites, and animal species. From ancient deep-sea coral forests to newly formed undersea volcanoes, lost battleships of World War II to the giant squid, the unprecedented scope of the Deep Frontier Expedition will reveal the oceans as never before.

What is the Deep Frontier Expedition?

- ▶ Your unique opportunity to explore the deep ocean and contribute to a better understanding of planet Earth
- ▶ A globe-encircling voyage of deep-sea discovery
- ▶ Supported by one of the world's largest research ships and two sophisticated deep-diving submersibles
- ▶ A unique fusion of exploration, adventure, science, education, outreach and technology
- ▶ An opportunity to bring the wonders of the abyss to life for hundreds of millions of people worldwide via compelling multi-media projects
- ▶ Provides positive, measurable outcomes for sponsors, the public, the environment, and expedition participants

What will we achieve?

At its heart the Deep Frontier Expedition is a scientific exploration and an adventure in the form of a global voyage.

Our goal is a worldwide investigation of a wide range of the deep's most extraordinary natural and historical features.

Our multi-year itinerary takes the RV *Akademik Keldysh* and its submersibles on a route that encompasses five oceans and both hemispheres. Unashamedly ambitious, the voyage will explore some of the least known and most mysterious places on Earth, extending from tropical seas to polar climes.

The *Deep Frontier Expedition* will have immense scientific and historical value, creating opportunities to answer important questions in many fields of endeavor, from deep-sea geology and biology, to marine archaeology and military history.

As a global odyssey, our expedition will capture the public imagination in a way rarely achieved in recent times, serving as a potent reminder that even today we live on a mostly unexplored planet.



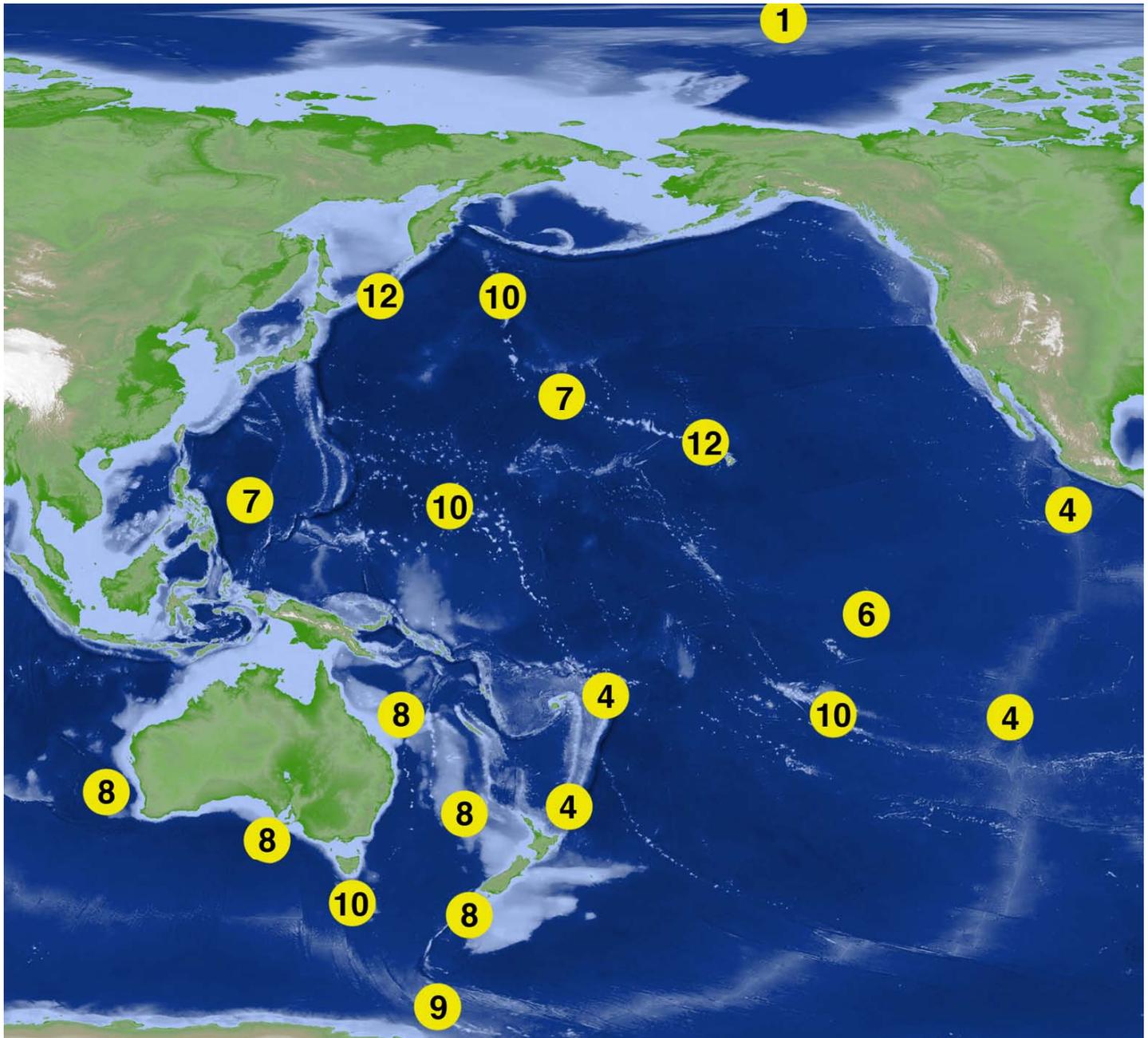
Preliminary Dive Targets

Deep Ocean Expeditions has developed a diverse suite of dive locations in spectacular and unique abyssal settings around the world. A variety of research projects, in various stages of planning, can be integrated into the Deep Frontier Expedition global cruise program. These include:

1. The 'real North Pole'. Some 13,500 ft under the frozen sea of the North Pole lies the unexplored seabed of the Arctic Ocean. No human has ever visited this notable site - it is one of the 'last remaining firsts' in geographic exploration.

2. Gakkel Ridge. The World's last unexplored ocean ridge lies beneath the Arctic ice cap. Recently discovered to be volcanically active, the Gakkel Ridge is a tantalizing target for geologists and biologists alike.

3. Caribbean/Gulf of Mexico. This region offers a wealth of dive targets for the Mirs. For scientists there is the opportunity to visit methane seeps, undersea brine lakes and the near-vertical walls of coral atolls extending down into the abyss.



4. Hydrothermal Vents. Only discovered in the mid-1970s, the world's hydrothermal vents dot the ocean's 'great ring of fire', where the seafloor is created and destroyed. They support a thriving ecosystem of bizarre life that is completely different from any other on the planet.

5. Red Sea. Dubbed the 'ocean of the future', the Red Sea is rapidly growing, thanks to its position astride an active seafloor-rifting zone. In its deep lie many secrets: basins filled with lakes of dense brine, strange microbes, undersea hot springs and ancient shipwrecks.

6. Mid-Pacific. Home to tens of thousands of undersea mountains, volcanoes, atolls, ridges, trenches and plains, the Pacific is the largest single geographic region on Earth.

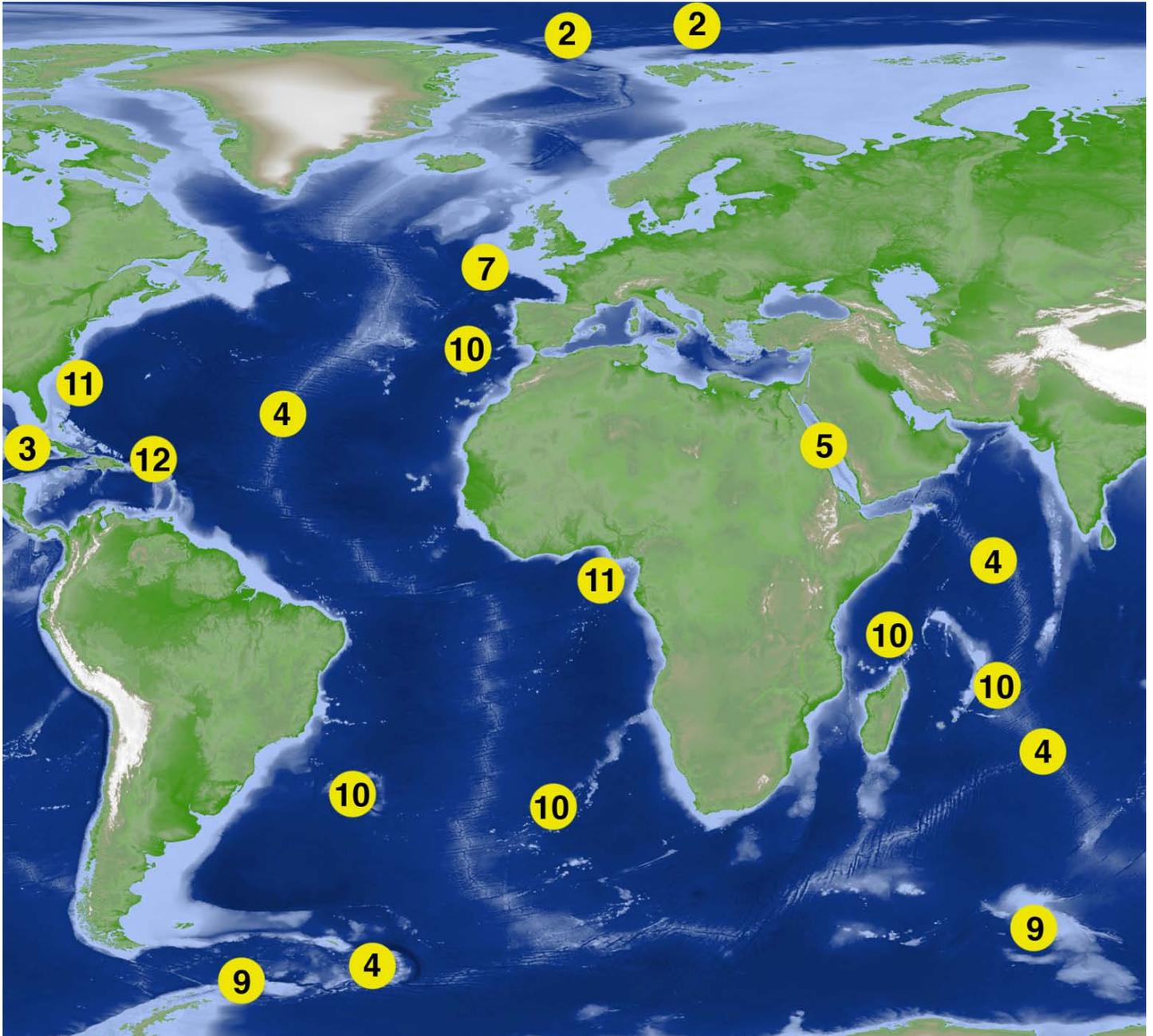
7. Lost Battlegrounds of World War II

Proposed mid-Pacific targets include a number of high-profile WWII shipwrecks such as the legendary USS Indianapolis and the large aircraft carriers of the Battle of Midway.

8. South Pacific. Deep Ocean

Expeditions is proud to be working with Australasian government agencies, scientific communities and other interested parties to progress two multi-goal dive programs: 'Deep New Zealand' and 'Deep Australia'

9. Antarctica. The last continent to be visited by humans, this remote landmass is only slowly giving up its secrets, while deep beneath the waves very little is known about the polar ecosystem - home of the 'colossal squid'.



10. Seamounts. Undersea mountains carpet the ocean floor in many regions of the world. Of the 30,000 known seamounts, only a tiny percentage have been visited by humans. Who can know what secrets the remaining 99% hold?

11. Gas Hydrates: Fuel of the Future?

Scientists estimate that about 130,000,000,000,000,000 cubic meters of gas hydrate lie deep on the ocean floor. Largely unknown outside scientific circles, gas hydrate - or 'flaming ice' - may be destined to become the 'next oil'.

12. Deep-Sea habitats: Scientists have good reason to believe an astonishing number of new species are yet to be discovered in the deep ocean. Investigation of any one of these species may unlock secrets of immense benefit to humanity.

The Shirshov Institute of Oceanology's Voyage Objectives

The Deep Frontier Expedition forms part of a Russian multi-year program to study the deep-sea environment on a global scale, studies based aboard the RV Akademik Mstislav Keldysh. The program has two main components: scientific investigation of chemosynthetic ecosystems and seamounts.

Conveying Wonder: Filmmaking, Documentaries and Outreach

Major film and television productions are presently under discussion. These include documentaries on geological phenomena such as seamounts and the biological spectacle of the largest migration on earth; the nightly rise and fall of the abyssal creatures in search of their prey.

Deep Ocean Expeditions (DOE) has a wealth of experience in the field of technical support and logistical management for extreme-depth filmmaking, and has participated in the production of many television, feature film and IMAX productions.

In the footsteps of Cousteau with his voyages aboard Calypso, the Deep Frontier Expedition will offer excellent opportunities for informative and educational outreach programs about expedition cruising and unscripted modern day discoveries.

Expedition Logistics

Why now?

- ▶ The current economic environment in Russia provides an opportunity for a prolonged cooperative expedition between the Shirshov Institute of Oceanology and Deep Ocean Expeditions.
- ▶ The MIR submersibles have been very well maintained since their construction in 1987, including regular complete overhauls. A significant refit was undertaken in 2004 and will ensure the submersibles are in prime working condition until their next refit in 2009.
- ▶ To see the Mir group operating has been compared to watching a ballet, each highly skilled team member faultlessly fulfilling a key role to ensure a professional, indeed flawless, operation. Many of the team members are at the zenith of their sea-going careers having been with Keldysh since her launch in 1981.
- ▶ Deep Ocean Expeditions has enjoyed a close working relationship with the P.P. Shirshov Institute of Oceanology, the RV Keldysh and its crew for nearly a decade. The synergies between the two organizations have been forged and honed by several groundbreaking expeditions.
- ▶ Projected increases in the price of fuel oil may make the proposed expedition economically untenable within five years.



The Mir submersibles

The twin Mir submersibles are operated by the Shirshov Institute of Oceanology, a division of the Russian Academy of Sciences, Moscow. Constructed in Finland, they are widely considered the world's most advanced and capable deep-diving submersibles.

These vehicles were built to explore truly abyssal depths. Capable of descending more than 20,000 feet, the Mirs have access to 98 percent of the ocean floor. Each submersible is crewed by one pilot and two observers.

The Mirs' mothership, the RV Keldysh, with its extensive accommodation, onboard science laboratories and science support equipment is equipped as a solid platform from which to conduct deep-sea research, exploration and discovery.

Personnel

RV Akademik Keldysh is the flagship of the Russian academic fleet and its tight-knit crew represents some of that nation's best and most experienced mariners. Likewise, the Mir submersibles are operated by a highly skilled and capable team of technicians and pilots with decades of deep-diving manned submersible experience. Expedition Leader, Chief Pilot and Head of the Mir submersible team is Dr Anatoly Sagalevitch, a renowned oceanographer who participated in the design of the Mirs.

Deep Ocean Expeditions has collaborated with the Russian Academy of Sciences on many successful expeditions around the world. Our staff have a wealth of experience in the commercial operation of submersibles and expedition logistics and management.



Financial Planning and Support

Our goal is to get you involved in deep-sea exploration, supporting science and educational outreach, and immersing yourself in a true adventure. Through your financial contributions and personal involvement you are facilitating the creation of new knowledge about the World Ocean.

Ideally, like many of our past clients, you will want to be involved in the expedition itself and join Keldysh for the ultimate deep-sea experience - diving into the abyss aboard a Mir submersible.

DOE embraces a unique funding model that enables a wide range of individuals and organizations to contribute to and participate in a specific portion of the overall global-scale expedition. As a patron, your contribution will enable you to join a specific project/leg of the expedition.

The Keldysh and the Mirs are very cost-competitive. It is no exaggeration to claim that they represent by far the most economic deep-sea manned submersible operation currently available.

Deep Ocean Expeditions is very committed to making the Deep Frontier Expedition a reality. The Keldysh and Mirs truly are remarkable assets for conducting deep-sea science, and they belong on the world stage. The oceanographic research community can benefit immeasurably from the Mirs' continued availability for marine exploration and research.

Financing for the Deep Frontier Expedition is already underway. A variety of individuals and organizations have signaled their interest in supporting components of the world cruise, including governmental and inter-governmental science agencies, academic institutions, private supporters, film companies, marine historians and philanthropists who have a strong desire for a better understanding of the world's oceans.

Within the broad scope of the expedition an opportunity exists for you to pursue those areas of greatest interest to you personally, whether this be exploring a new and historically important wreck, hunting for the giant squid, visiting a new hydrothermal vent field or documenting previously unseen seascapes.



Deep Frontier Expedition Packages

For private supporters, we are able to offer three levels of participation, with each level receiving commensurate recognition that rewards significant contributions to the expedition:

Deep Adventurer.

Contributors of \$50,000 per year will be recognized as Deep Adventurers. As an 'Adventurer', you will have the annual opportunity to join Keldysh on a leg of the Deep Frontier Expedition and to undertake an actual scientific dive into the abyss aboard a Mir submersible. You will also be invited to bring along a non-diving companion to share the experience of the voyage, to observe your Mir dive, and to be involved with a world class oceanographic exploration team. Your dive will be recorded and you will be able to take home a DVD of your experience to share with family and friends and to use as a foundation for any speaking engagements and presentations you might chose to do following your deep sea adventure.

Deep Explorer.

Contributions of \$100,000 per year will see you recognized as a Deep Explorer. As an 'Explorer', you will have the opportunity to join Keldysh at your leisure to undertake three separate exploration dives (annually) into the abyss below. You may wish to conduct multiple dives at a single site in order to explore it thoroughly, or you may choose to join Keldysh on different legs of the expedition to undertake dives in varying locations. You will also be invited to bring along two non-diving companions to share in your experiences and to support you through the diving program. You will be formally acknowledged as a key sponsor and expedition contributor in any relevant scientific papers that are produced during your voyage leg. Subject to your approval, you will be included in any media releases produced during your dive series. Your dive will be recorded and you will be able to take home a DVD of your dives as they will undoubtedly show both species and seascapes previously unseen by human eyes.

Deep Discoverer.

As a 'Discoverer', your sponsorship of \$250,000 per year will entitle you to conduct eight Mir dives (annually) into the extreme deep. You will be acknowledged as one of the world's more experienced submersible divers and genuinely recognized as a bonafide deep-sea explorer and discoverer. You will have considerably more experience in the deep-sea world than most of the world's key marine scientists. In addition to formal recognition as a key sponsor and participant in the Deep Frontiers Expedition through all scientific papers and media material produced during your voyages. You may also receive the great honor of having a deep-sea species discovered during your dives named after you. As a 'Discoverer', your eight dives will see you exploring the abyss at multiple sites and being fully involved at the cutting edge of scientific discovery. You will also be invited to bring along four non-diving companions to share in your experiences and to be actively involved in the scientific endeavor aboard Keldysh. Your dives will be recorded and you will be able to take home a DVD of your dives as they will undoubtedly include species previously unknown to science (including the one named after you!).

For US-based sponsors, part of your contribution to these scientific voyages may be eligible to be claimed as a legitimate tax deduction (each individual case will be require specific evaluation by a tax specialist).

Should you wish not to participate in all the dives entitled to you, you could send a family member, friend or colleague who would value the experience. You could also choose to gift a dive to a particular science institution or agency, the university where you undertook your studies, an educational/outreach organization, or even a disadvantaged youth who might find a deep-sea adventure to be a life-changing experience. Our dive program is kept flexible, so your dives can be arranged in a pattern that best suits your timetable and the overall voyage plan.

Branding and Sponsorship Opportunities for Corporates

For patrons with corporate links, the Deep Frontier Expedition offers a unique and powerful branding opportunity. A wide cross-section of the public is fascinated by exploration, and interest in the expedition will span all demographics, from young children to the elderly.

From a branding perspective, deep-sea exploration is a safe, inclusive and appealing alternative to standard sponsorship venues. As a concept, the expedition has the added advantage of being internationally durable, crossing cultural boundaries. It will appeal as much in Asia, Europe and Australasia as it will to North American consumers.

Deep Ocean Expedition's branding and sponsorship activities are administered via a colleague company, Deep Ocean One, and all corporate approaches are routed through IMG, Deep Ocean One's branding agent.

To maximize impact, the Deep Frontier Expedition feeds upon the synergy between exploration, adventure, science, history, education and entertainment.

Moving Forward

To obtain your copy of the detailed Deep Frontier Expedition project document, or to discuss the expedition in person, please contact one of our staff listed below. We welcome your feedback, including ideas on how the Deep Frontier Expedition might be designed to encompass your personal ambitions.

Belinda Sawyer - Operations Manager -

Rob McCallum - Project Manager -

Peter Batson - Project Scientist -

For more information about Deep Ocean Expeditions please visit:

www.deepoceanexpeditions.de