

ALUCIA

This former research vessel has been redesigned and rebuilt to become a world-class exploration yacht—of ultimate proportion

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“WE WANTED AN EXPEDITION YACHT WITH FORMIDABLE ABILITY,” EXPLAINS OWNER MIKE MCDOWELL. “AND THAT’S WHAT WE GOT.”

He’s talking about *Alucia*, a unique vessel with striking exploration potential that has set the expedition cruising scene abuzz. After a four-year redesign and rebuild, she has recently completed extensive sea trials. By all accounts, this 183ft yacht is very much out of the ordinary. She can probe deep into the ocean realm with her twin submarines, yet she has all the comfort, ambiance, and amenities expected of a modern superyacht.

Alucia launched in 1974 from the Auroux Shipyard in France as *RV Nadir*. Designed by the French government for worldwide oceanographic exploration, *Nadir* was purpose-built as a support ship for the French submersible *Nautilus* and served as a platform for science and marine exploration operations. A notoriously staunch vessel in the face of rough weather, *Nadir* caught the eye of McDowell, an Australian adventurer passionate about science and oceanographic exploration.

McDowell had earned a reputation by leading tourists and amateur explorers on expeditions to the distant reaches of the globe. Some of his adventures included taking Russian icebreakers to the North Pole and diving to the bottom of the Arctic Ocean.

Through his company, Deep Ocean Expeditions, formed in 1998, McDowell was among the first to offer commercial tours to the »

Deep Sea Photography (this page)

Previous spread: A fraction of *Alucia*'s heavy-lift capability is used to launch her twin Deep Rover submersibles. The subs aid in researching critters like these. This page: *Alucia* is able to map the seafloor to 4,000 feet with her multibeam sonar. Opposite page, clockwise from top right: Her understated elegance is fitting for an expedition yacht. *Alucia*'s "helodeck" boasts a full complement of emergency systems. The wet lab, one of three onboard science laboratories; *Alucia*'s mast.

“WITH *ALUCIA* YOU CAN BE ISLAND HOPPING IN LUXURY ONE DAY, AND THE NEXT DAY FIND YOURSELF IN A DEEP ROVER SUBMERSIBLE HOVERING OVER AN UNDERSEA VOLCANO THOUSANDS OF FEET BENEATH THE SURFACE.”

Antarctic, leading dive explorations to Papua New Guinea and Indonesia, and eventually conducting submersible expeditions on deep ocean excursions. He was the first to dive on the battleship *Bismarck* and was an early visitor to the *RMS Titanic* with his submersible team.

Noticing the disconnect that often accompanies the design of expedition ships and the needs of their users, McDowell was inspired in 2004 to found DeepOcean Quest and commission the *Alucia* rebuild. He wanted a vessel that could work comfortably in remote and challenging regions.

Nadir's transformation into *Alucia* was nothing short of profound, as DeepOcean Quest's multi-role requirements necessitated an almost complete rebuild. The basic design

specification was for a very comfortable expedition yacht capable of exploring remote places for long periods. A. Joseph Smith of Coastal Marine, Inc., a Green Cove Springs, Florida-based company, managed the completion of the project.

The hull was ultra-sounded, and any steel that would not last 30 years was replaced, per the detailed design brief. Every wire and pipe, and each plumbing and electrical component was replaced, and new watermakers, bow thrusters, sewage system, power train, and ZeroSpeed stabilizers were added. There was not one hydraulic, electrical, electronic, or mechanical device that was not replaced.

The massive, 22-ton-lift A-frame, used to launch and retrieve her subs from the depths, remained a profile ➤



“NAUTICAL CHARTS ONCE MARKED UNCHARTED REGIONS WITH THE PHRASE ‘HERE BE DRAGONS.’ WE BUILT *ALUCIA* GO TO FIND THE DRAGONS.”

fixture and signature part of *Alucia*, and was completely updated with new mechanics, including a launch and recovery system for her three submersibles capable of exploring down to 3,280 feet.

The jewel in *Alucia*’s crown is her deep-sea exploration potential. *Nadir* was a proven submersible mothership, which was a key factor in McDowell’s selection. The ship and the subs were further integrated with a dedicated mission control on the submarine deck and a 32ft custom tender.

A powerful multibeam sonar—a high-resolution seafloor mapping tool normally found on military ships and research vessels—further rounds out the deep-sea exploration offerings. McDowell explains, “Many of the regions we intend to take *Alucia* are remote and unexplored, and inevitably most of these undersea places have not been mapped properly. With multibeam we can map an entire area in exquisite detail before we dive the subs on it.”

The capabilities of multibeam technology are impressive. *Alucia* can discover a new undersea volcano in the evening, map it overnight, and have detailed 3-D bathymetry ready

for the submersible dive briefing in the morning. The technology helps to select exploration targets, acting as a bridge between the vast scale of the ocean and the relatively tiny footprint of a single submersible dive.

“*Alucia* is not just a pretty face, she has been refashioned for the leading edge of ocean exploration,” explains project manager Rob McCallum. “This is a platform for real science and discovery, a ship that ocean scientists and underwater filmmakers take very seriously.”

Given *Alucia*’s hybrid concept, an overarching requirement was a high level of comfort and ambiance. Under the direction of Joseph Artese, the interior design of the three-deck accommodation areas is elegant, with emphasis on maximizing natural light via large windows and light tones. A bird’s-eye maple and brushed steel theme unifies the dining, lounge, and staterooms, and the furnishings are uncluttered, reflecting the fact that *Alucia* is an expedition yacht that may be spending a month or more at sea.

Alucia’s upper deck offers first-class accommodations for up to 12 guests: four twin cabins with en suites and »



TWIN DEEP ROVERS

Alucia’s twin Deep Rover submersibles literally add a third dimension to her exploration abilities. Built in 1994, they starred in James Cameron’s feature film *Aliens of the Deep*. Unlike many deepwater submarines, their pressure sphere is made of transparent Plexiglass, providing an unrivaled view for the pilot and passenger within.

From their nest in *Alucia*’s hangar, their presence is striking. They bristle with equipment and gear mounts reminiscent of a Swiss Army Knife. At rest on their Launch and Retrieval System platforms, they look vaguely menacing.

The Deep Rovers can dive more than 3,000 feet, to a world accessible by only a handful of undersea vehicles worldwide. They are the deepest diving manned submarines in private ownership today and can dive together or singly to explore, sample, film, and survey the deep ocean. They carry powerful lighting systems, HD

cameras, mechanical arms, and other samplers, making them versatile and safe.

At 3,000 feet, darkness is total and eternal, the only light coming from strange, bioluminescent creatures and the powerful lights on the submersible itself. This is where the wild things are—the lantern shark and the black seadevil, the vampire squid and the snaggletooth.

The subs’ self-powered LARS platforms might appear a bit over-engineered to the novice. “Don’t you believe it,” McDowell cautions, conviction in his voice conveying years of operational experience. “A sub’s launch and recovery system dictates the difference between diving and not diving when sea conditions are less than perfect,” he explains.

Going down to the deep sea and getting back to the surface takes confident, competent engineering and good, methodical piloting. But the rewards of deep exploration are high. The deep oceans are so unexplored that virtually every submersible dive yields new information. It is very likely that the

Deep Rovers will discover new species and new seascapes in the years ahead.

“We don’t expect the Deep Rovers to be used solely for science—we envisage the subs will take *Alucia*’s owners, family, and friends on breathtaking personal explorations into the deep ocean. And these dives can be far from trivial joyrides—the Deep Rovers are mission-oriented vehicles. They can film in high-definition, collect samples and artifacts, search and survey various targets. That’s the beauty of it—it’s the real thing,” says McDowell.



Alucia is one of only two vessels in the world equipped with twin deep-diving submersibles.



The comfortable bridge, above, invites guests to spend time familiarizing themselves with *Alucia*’s mission du jour. Artese designed the new bridge deck aft of the pilothouse with a main salon and dining area with floor-to-ceiling featuring granite sills designed for guests to sit and enjoy the “exploration activity.”



This page: The dining and lounge areas are spacious and comfortable and include a well-stocked snack bar, above right. **Opposite page:** the engine control room, top, and bottom: The nerve center of every operation, the mission control room hosts the multibeam sonar and communications with subs, tenders, and aircraft.

two spacious staterooms—designated the owner’s suite and VIP suite—which feature king beds, excellent views, and luxurious bathroom areas. Artese reconfigured a narrow 60ft passageway from a claustrophobic hallway into a bright, expansive living area and gallery to display a collection of marine art. Each stateroom opens into this grotto of marine life, with the aft end accessing both the heli and submersible decks.

Artese designed the new bridge deck aft of the state-of-the-art pilothouse with a main salon and dining area with floor-to-ceiling windows featuring granite sills designed for guests to sit and enjoy the “exploration activity.”

The forward bulkhead of the lounge area was fabricated of aqua-colored, maple-framed panels of an Electro-Luminescent Lumicor to produce an underwater effect. A complete bar and galley alcove makes serving on the pilothouse level easier, all supplied by the large dumbwaiter forward of the Lumicor bulkhead that ascends from the galley three levels below. A spiral stairway of brushed stainless winds above to the observation deck and below to the accommodations level. Extra bodies on board not only have to sleep, but eat, and this meant the galley had to be a testimonial to dining efficiency, with seating for 27 in the crew mess and 14 in the VIP dining salon, and with the potential

to produce up to 165 meals a day in a cozy but functional, completely new stainless commercial-grade galley.

Alucia’s science role entails many features rarely found on private expedition yachts, including wet and dry laboratories, coldwater aquarium facilities, deepwater sampling gear, mixed gas generation and storage facilities, hazchem storage, multibeam sonar, remote sensing equipment, and massive onboard computing power.

The impressive aquarium was built from specialized materials with the consultation of leading deep-sea biologists. Employing recent advances in technology, the room’s cylindrical kreisel tanks can keep delicate deep-sea animals alive for extended periods in perfectly maintained laboratory conditions.

“We operate way beyond the Twilight Zone,” McCallum says, “We are working at three times the depth that light can reach, so we are in ‘inner space,’ the darkest dark.... In our exploration, we often will bring up specimens from the unknown.”

The dry lab located amidships on the main deck is just as custom, with computers and electronic-analysis testing equipment and lots of electrical power supply. Both U.S. and European electrical connections run throughout the boat, with clean power running through feed and filtering systems

to isolate any electronic interference from testing equipment. Along with the wet and dry labs, a high-temperature incinerator room was built to burn waste and house a water-treatment processor that creates emissions clean enough to enable the ship to be used in pristine polar, coral, and estuarine environments.

A custom-designed dive locker features one low- and two high-pressure compressors with the ability to do mixed gas for special diving situations. A four-man twin-lock decompression chamber was installed and mounted on a hanging mezzanine deck to maximize deck space.

Filmmaking and public outreach were also important factors in the design brief. McDowell explains that DeepOcean Quest is fundamentally driven by a desire to communicate the ocean’s wonders to as large an audience as possible. To meet this vision, *Alucia* has state-of-the-art studio facilities to complement the Deep Rovers’ underwater filming and lighting capabilities. An onboard editing suite was designed in collaboration with Emmy-winning marine filmmaker Mike deGruy. In theory, a filmmaker can »





Designed for extended cruising, *Alucia* has a 7,300nm range and an endurance of 28 to 41 days.

shoot and edit a feature-length film without leaving the ship.

A giant satellite dome enables *Alucia* to transmit HD footage live via satellite from anywhere on the planet's surface, fit for real-time broadcast.

From her engine room, two new Cummins KTA50M2 engines produce 1,600hp each, driving two four-blade, 81in props. *Alucia* cruises at 11 to 12 knots with a maximum speed of around 14 knots. She has an effective range of 7,300 nautical miles and an endurance of 28 to 41 days.

In fact, extended capability is a defining feature of *Alucia*. Her ice-strengthened hull was fitted with a 5,000-gallon tank of jet fuel for helicopters that can land on the dedicated main-deck landing pad, and a diesel station serves the auxiliaries in the stern. *Alucia* can be fitted with two custom support containers that could be transported to meet the ship anywhere in the world. One was designed with beds, showers, and all the comforts to handle six scientists, and the other has a lab with storage, research counter space, and is wired for computer operations. In all, *Alucia* can support 48 people. It takes 12 crew to run her, with six more people handling the subs, and megayacht luxury for up to 12 guests.

Alucia's unique hybrid concept and accompanying mission is an exceptional selling point that adds to the ship's natural charisma. She has a definite science-meets-science-fiction vibe and is an altogether new kind of vessel—the very definition of “outside the box.”

“‘Outside the box’ is precisely what is needed right now,” says McDowell. “Most of the deep ocean—basically the majority of Planet Earth—has never been explored. Tell that to a ten-year-old and watch their eyes widen. It's a revelation to them. I believe all human beings need new frontiers to explore. To retain a little mystery and excitement in our lives is a very good thing. What is life, if not an adventure?” ☐

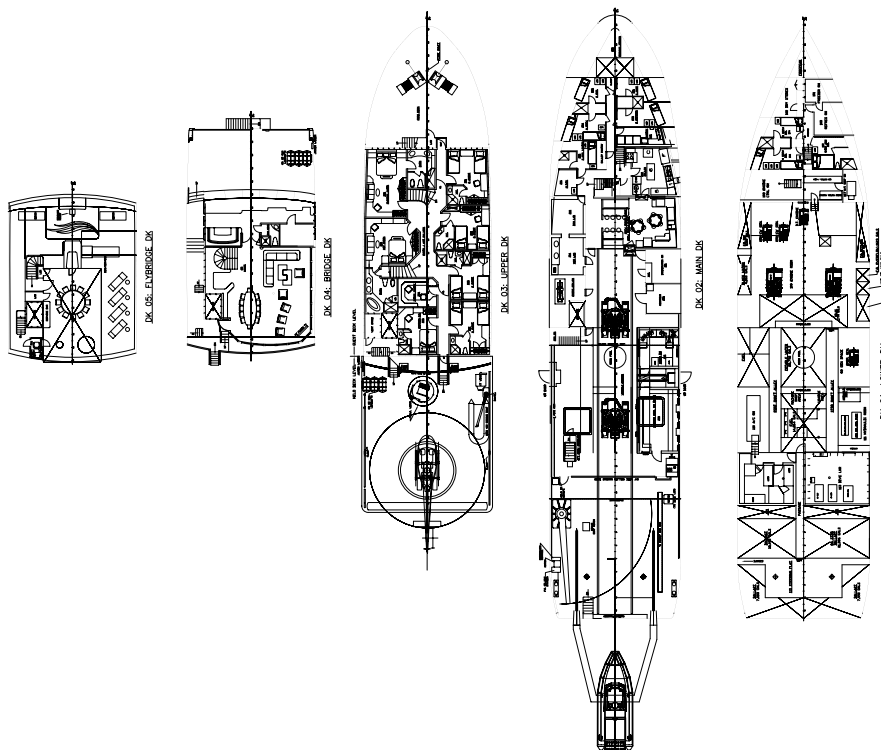
LOA: 182ft 11in (55.75m)
BEAM: 139ft (11.91m) (8ft fins)
DRAFT: 17ft (5.2m)
DISPLACEMENT: 2,047 tons
ENGINES: 2 x Cummins—Type KTA50M2—1,600hp @ 1,800rpm
SPEED (MAX/CRUISE): 14/11 knots
RANGE: 7,300nm at 11 knots
FUEL CAPACITY: 93,000 U.S. gallons
THRUSTERS: 1 x Gill jet - 550bhp multidirectional thrust engine (360°)
STABILIZERS: Quantum QC1800 ZeroSpeed active stabilizers
GENERATORS: 3 x Detroit Diesel—Series 60—400bhp @ 1,500rpm
FRESHWATER CAPACITY: 26,000 U.S. gallons

GREY/BLACKWATER: Omnipure 12MC full onboard treatment facility
OWNER AND GUESTS: Up to 28 (16 scientists/documentary personnel and up to 12 paying passengers)

CREW: 20 (12 ships crew/6 submersible crew)
TENDERS AND TOYS: Northwind Marine 32ft twin jet 640hp, racks for 2 x MkV Zodiacs and 2 x PWC, Zodiac SOLAS

Rescue Boat
CONSTRUCTION: Steel
CLASSIFICATION: Bureau Veritas
REFIT NAVAL ARCHITECTURE: Kirilloff & Associates
REFIT EXTERIOR STYLING:

Joseph Artese Design
REFIT INTERIOR DESIGNER: Joseph Artese Design
REFIT PROJECT MANAGER: Joe Smith, Coastal Marine of Florida
BUILDER/YEAR: Auroux (France)/1974 (ex-*Nadir*)
REFIT YARD/YEAR: Deep Ocean Quest/2009
PRICE GUIDE: \$42 million
SPECIAL FEATURES: HELICOPTER DECK: 5,000 gallons Jet A1, Night landing system, foam dispersers;
SUBMERSIBLES: 2 x Deep Rover 1,000m (3,280ft) manned submersibles, 1 x Dual Deep Worker 600m (2,000ft)
SONAR: Reson 8111ER 3,937ft range
HEAVY LIFT CAPABILITY: 25-ton A-frame crane, 13-ton crane, 1-ton crane
SCIENCE CAPABILITY: 2 x marine laboratories, 1 x deep water aquarium, 13,000ft deep trawl winch, 6,800ft SeaBird 911 sampler
MEDIA SUPPORT: Twin editing suites on Apple raid 5 with twin Final Cut Pro II



READER'S RESOURCE

Deep Ocean Quest
 Tel: 801-390-7025
www.deeпоceanquest.com