

**BLACK SAND**  
TECHNOLOGIES

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High-Tech & Advanced Unmanned Systems  
BlackSand Marine Technologies



# Need & Solution

Seas and Oceans account for 72% of the Earth's surface.

They are the planet's most important asset.

Operating in the marine-maritime industry is currently better than the space race, as indicated, among others, by the world's largest investment fund, Bridgewater Associates.

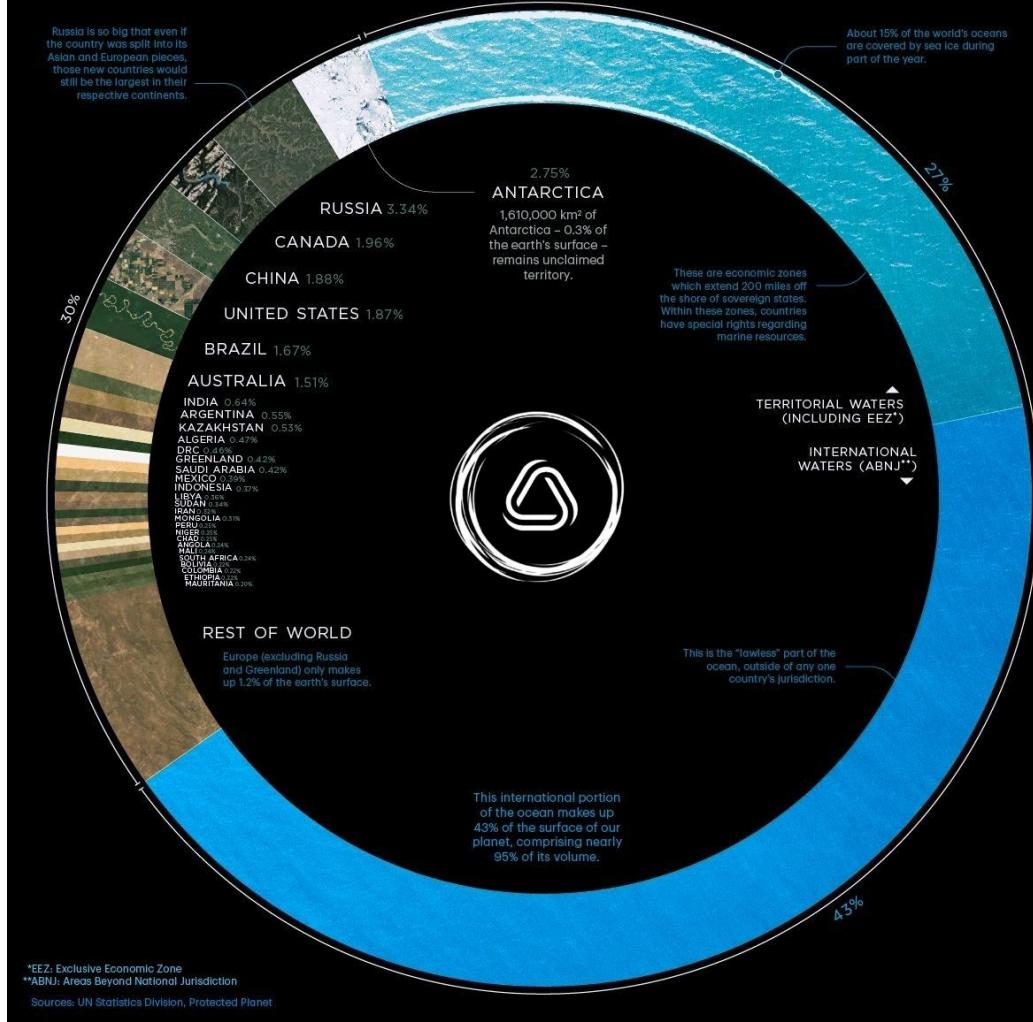
OECD expects the global ocean economy to double by 2030.

Approximately 80% of the oceans remain unmapped.

## Solution:

Development of unmanned intelligent systems Ocean data collection & Analytics.

Exponential cost/risk savings



# Environment / Industries

## Operational and strategic application sectors



### Energy

- Exploration
- Hydrography
- Inspection onshore/offshore installations
- Logistics and transportation

### Coastal management

- Water quality
- Pollutant detection
- Immediate response/rapid action
- Internal waters, rivers, lakes

### Port Authorities

- Surveillance/Security
- Inspection and monitoring in port environments
- Spill detection
- Environmental pollution
- Patrol control

### Other strategic sectors

- Aquaculture and fisheries management
- Search & rescue
- Intelligence/reconnaissance
- Environmental protection and ecosystems
- Bathymetry/seabed mapping
- Safety/security
- Defense
- Scientific research and monitoring

# Advanced Systems

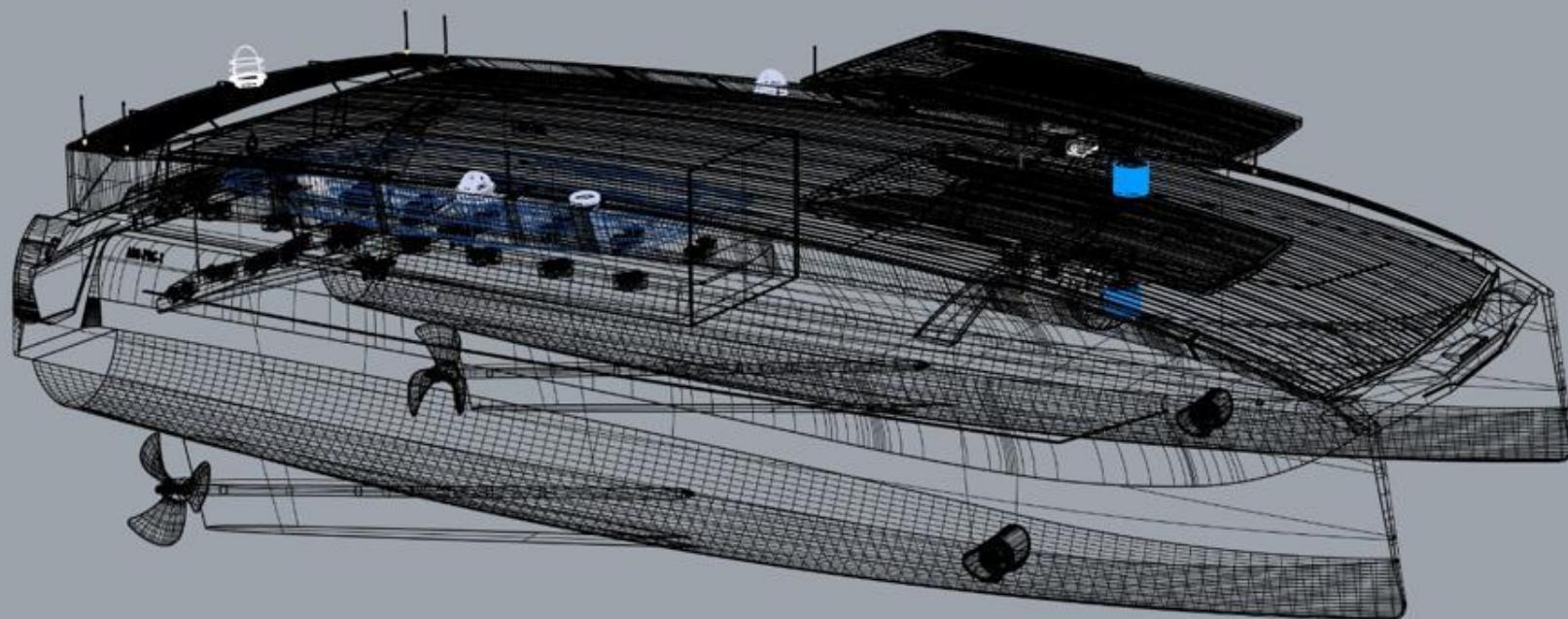
- Multifunctional / versatility
- Low-cost solutions
- Intelligent in essence/functionality, apart from sensorics
- Advanced engineering
- Integration of auxiliary unmanned systems
- Multitask SAU
- Solar/Electric & Hydrogen
- Carbon footprint reduction
- Advanced USV's / UWV's: Significant advantages versus another unmanned systems
- Swarms SAU (Surface-Aerial-Underwater)



# Innovative value

## Competitive advantage

Advanced and intelligent unmanned marine systems in their essence and functionality, combining state-of-the-art sensors/equipment, contributing to the development of a strategic and advanced industry





# Unmanned Systems

## Autonomous Navigation

- Advanced USV-UWV development
- Scalable systems - small length → large length.
- Cost savings
- Risk reduction
- Safety in navigation
- 24/7 operability
- Autonomy, Performance and Efficiency
- Machine learning and AI
- Exponential improvement in preventive & predictive maintenance
- Continuous monitoring and exhaustive analysis of mass data

# Differential factor

- Intelligent unmanned systems (advanced)
- Renewable energy based propulsion systems
- Autonomous navigation
- Machine learning and AI systems
- Multifunctional versatility
- Multiple custom configurable versions according to projects and missions (autonomy - high performance - cargo/logistics, etc.)
- Multimodal (Surface, Aerial and Underwater)
- Multifunctional (one system, many missions)
- Multi-domain (easy to transport, deploy and recover from offshore mother ship and from land)
- Integration of auxiliary unmanned systems
- Multi Task SAU operability
- Exponential security
- Low radar detection
- Unlimited autonomy
- Unsinkability systems
- Anti-capsize and self-righting systems
- Self-steering systems
- Azimuth systems
- Ruggedness and reliability (designed to operate in severe conditions)
- Automatic collision avoidance
- Weather station
- Multibeam sonar
- Acoustic sensors
- Wave sensors
- Hull integrated IR cameras and sensors
- Real-time satellite data systems
- Solar roof
- Electric, hybrid and hydrogen
- Anti-detection systems

# Multitask SAU Swarms (Surface-Aerial-Underwater)



# Unlimited Autonomy



# Strategic industries



- Captive payloads: increased safety and security
- Integrated sensors and equipment
- Robustness and reliability in harsh environments and conditions
- Increased autonomy and performance ranges
- Exponential safety in navigation
- Maximum use of photovoltaic cells
- Larger useful surface area
- Maximum stability in static operating positions
- Increased speed in fast action operations
- Minimal draft in coastal and shallow water operations
- Cargo transport and logistics

# SAU Swarms effective monitoring

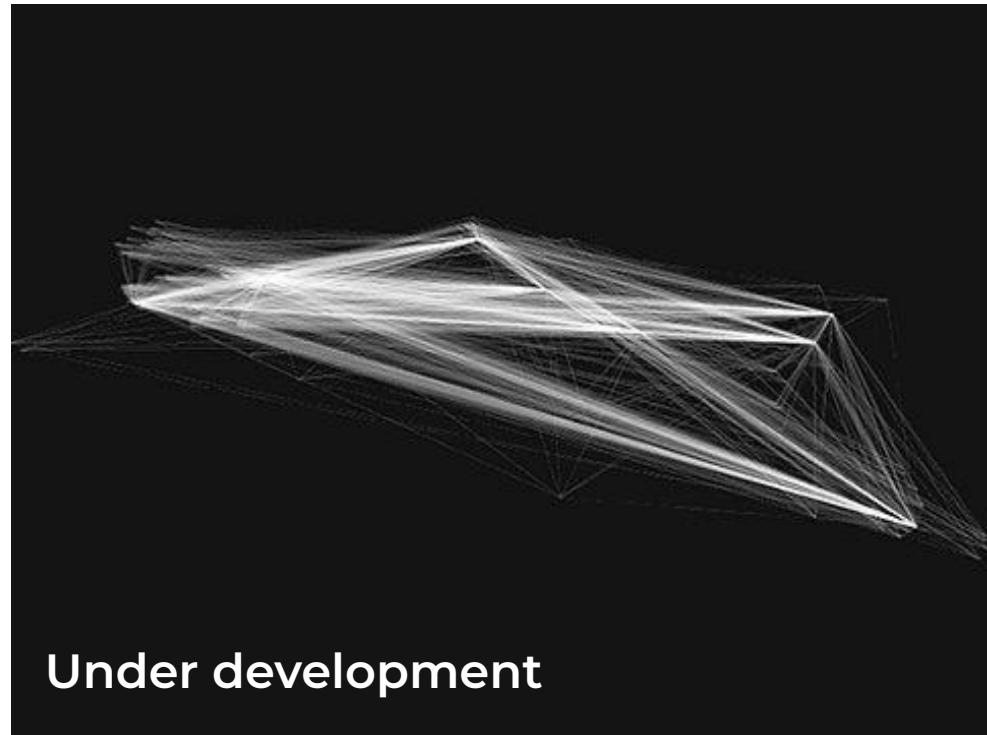
- Robotics-as-a-Service
- Providing technologically effective means to detect and anticipate
- Unlimited Range
- Hangars & Stations
- Exponential security
- Multiplicity of communications



# Wing-in-Ground Vehicles

## Rapid action response

- Versatility: reconnaissance, patrolling, search & rescue
- Ultra high-performance and energy efficiency
- Reduced energy consumption
- Cost-effective
- Low radar detection
- Advancements in automatic control
- Water takeoff and landing, no specific infrastructure requirements
- Small size
- Sustainability: UWVs can be fully electric and Hydrogen solutions



**Under development**

# Solar/Hydrogen Advanced USV's Transoceanic SAS 2023

109 11 57 19

DAYS

HOURS

MINUTES

SECONDS

Join to the adventure!

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## Pioneer International Challenge 2023-2024

# Highly international experienced team

Large High-Tech models successfully completed



# Founding Team



**Adrián Moralo**  
CEO - Business/Product Development

Specialist for high-tech multihulls with more than 20 years of international experience. Specialised in custom projects for various leading boat and yacht manufacturers. Management of own fleet of exclusive passenger boats for premium events and sustainable maritime excursions



**Jean-Jacques Coste**  
CEO - Engineering/Naval Architect

Unmatched expertise in the design and construction of high performing and luxury cruising multihulls, many of which gained worldwide recognition and won awards. Fuelled by passion, remains ahead of the fleet and continues to produce cutting edge innovative superyachts and high-tech marine systems



**Andreas Kavalirek**  
CTO - New Technologies

Highly experienced boating/marine executive. More than 20 years of experience as an entrepreneur in the fields of smart controls, electric boat propulsion and renewable energy, among others. Always on the pulse for new technologies and technical achievements to improve products

## 2x Twin High-Tech Hybrid Trimarans 175 ft



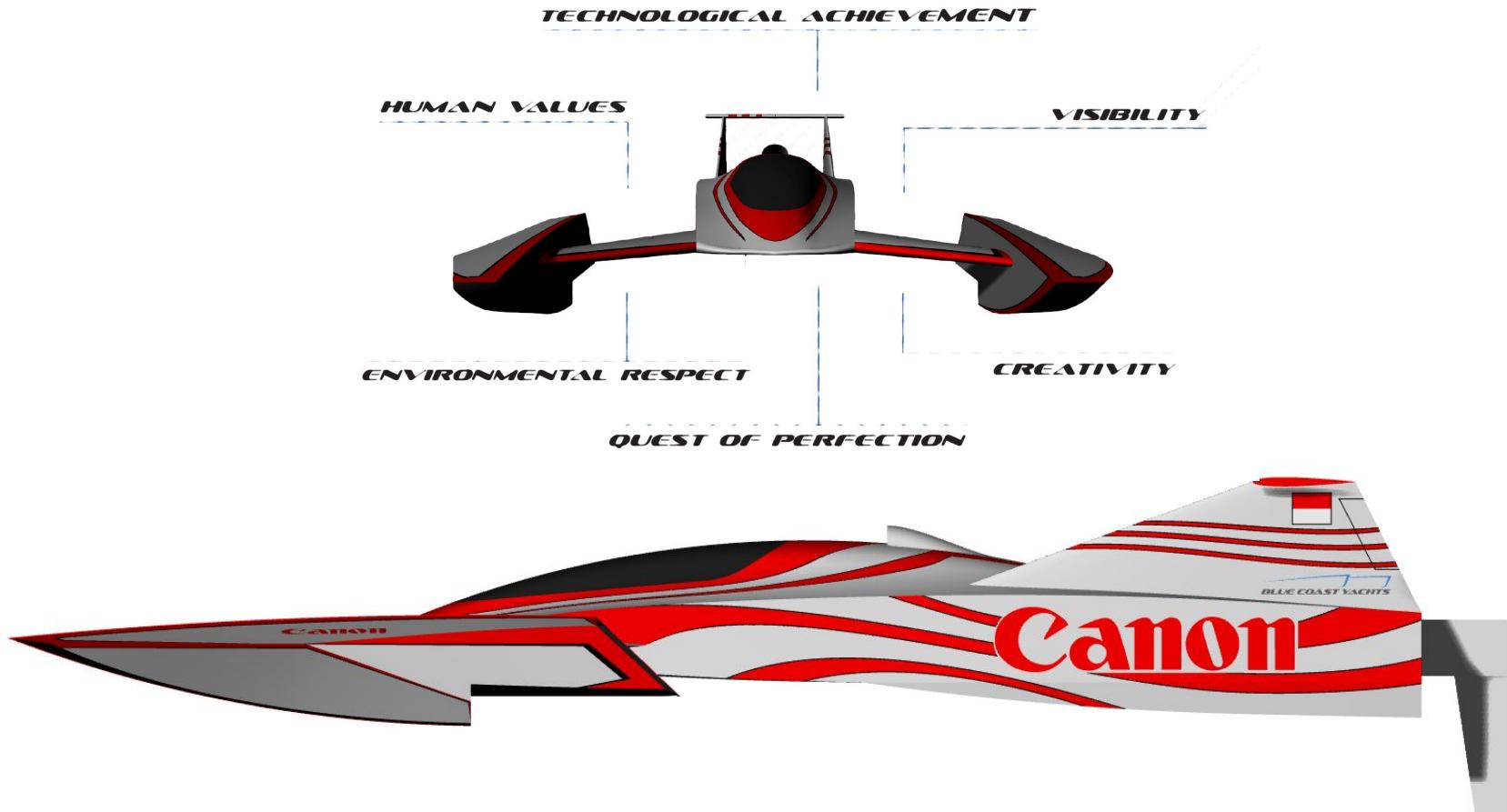








# WORLD SPEED RECORD CHALLENGER FOR ELECTRIC POWERED BOAT



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**INFO@BLACKSAND.TECH**  
**+34 670 754 881**