VIEW INTO THE BLUE

View Into The Blue®

Aquatic Monitoring Solutions

Experience the Ocean

View Into The Blue® is a world leader in the design, manufacturing and installation of cabled, long-term, live-streaming aquatic observatories. We supply industry, researchers and educational organizations with standard and customized end-to-end monitoring solutions, including submersible self-cleaning vision systems, self-cleaning illuminators, scientific sensors and associated communications and powering infrastructure. Our state-of-the-art systems are IP-based, permitting secure control and monitoring from nearly anywhere in the world.

Our aquatic technologies are built on nearly twenty years of experience in the development and deployment of robust, self-cleaning technologies. More than one-hundred of our aquatic observatories have been used in marine and freshwater environments around the world, from the tropics to Antarctica.

With a View Into The Blue® observatory, you'll be able to broadcast unparalleled real-time video, audio and data from aquatic environments to target audiences or the worldwide public.

Core Capabilities

Concept to Completion

Beginning with a general concept or a specific monitoring need, we guide our customers through every step of the way. We provide standard products that you can install yourself, and design complex solutions requiring custom engineering, fabrication and installation support. Our experienced team will gladly provide an end-to-end solution, or anything in between.

Design and Manufacturing

When one of our standard solutions doesn't meet your requirements, we'll go back to the drawing board. We'll perform site surveys and conceptualize your solution, then engineer and manufacture your system. Our design and consulting team includes scientists, engineers and technologists who are passionate about aquatic monitoring.

Installation and Site Services

We provide responsive remote assistance for customers capable of installing our plug-and-play systems themselves. Or, trust our on-site technicians to assist with the installation of your system, anywhere in the world. View Into The Blue® will ensure that your instruments are prepared to fulfill their intended purpose.

Maintenance

With exacting engineering, rugged materials and unique self-cleaning technologies, the maintenance requirements of View Into The Blue® systems are dramatically reduced. We'll provide a regular maintenance schedule for every project to ensure that our customer's equipment provides excellent service in the harshest conditions for years to come.

Streaming Services

View Into The Blue® offers enterprise-ready streaming services to help customers share their aquatic environment with a specific audience or the worldwide public. Our systems also work seamlessly with numerous free live-streaming platforms, so you can easily and affordably expand the reach of your project.

Customer Service

We recognize the value of good service in everything we do. You can rely on us to grow with you and anticipate your needs as they change. We are pleased to offer continuous customer support throughout the lives of our systems.

Products and Services

Underwater Vision Systems

- IP-based, live-streaming, fully-controllable, HD aquatic vision systems
- 360° virtual-reality, 360° pan-tilt-zoom and fixed-position cameras
- Mechanical self-cleaning optics (no toxic anti-foulants)
- Patented CleanSweep™ self-cleaning technology
- Hardware-accelerated AI for object detection and classification
- Integrated or external hydrophone audio
- Shoreline to over 1,000 m depth

Communication and Powering Infrastructure

- Hybrid communications and powering over efficient 2-conductor cables
- HD video and IP and serial data over cable lengths >2 km
- Standard or customized submersible enclosures for electronics and batteries

Scientific Data Collection

- Easily integrate VITB or third-party physical and chemical sensors
- Integration of research-grade broadband hydrophones
- Built-in web-server or cloud-based data dashboard for monitoring & logging data

Underwater Illumination

- Mechanical self-cleaning or passive antifouling illuminators
- IP-based programmable control and dimming

Power and Connectivity at Remote Locations

- Solar power arrays, small wind turbines and battery storage
- Long-distance wireless internet backhauls

Moorings and Mountings

- Standard and customized solutions to fit any application or environment
- Engineering, prototyping and manufacturing services

Installation, Configuration and Maintenance

- Full site survey, installation and maintenance services available
- Streaming service management and responsive IT support

Unique Solutions

View Into the Blue® Self-Cleaning Technologies

Biofouling is the greatest challenge to long-term underwater imaging. View Into The Blue®'s CleanSweep™ housings solve this problem with a patented lens-cleaning system. Our wiper-based technologies dramatically reduce the frequency and costs of maintenance for the submerged optical elements. This technology uses no toxic chemicals and has no impacts on marine life. We are the only provider of robust self-cleaning vision systems suitable for long-term deployment underwater.

Complex Systems Made Simple

View Into The Blue® monitoring solutions have been designed from the ground up to be modular and expandable. Our unique aquatic observatories typically include a constellation of self-cleaning vision systems, hydrophones, controllable underwater lighting and scientific sensors that you monitor and control locally, or over the internet. Expand your data collection capabilities by incorporating nearly any third-party aquatic sensor or instrument, whether it is a TCP/IP device or a serial communication device.

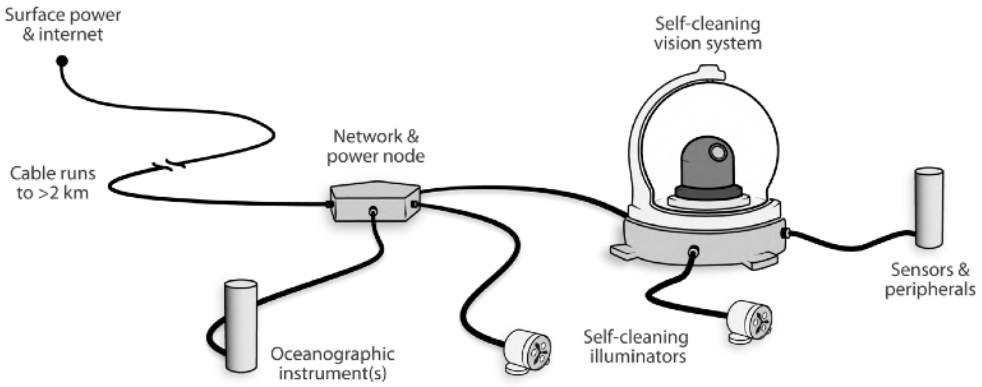
Low-Cost, Modular Infrastructure

The costs of cabling and submersible electrical connectors limit the widespread adoption of real-time aquatic monitoring. Our unique BelugaLink technology reduces the cost and complexity of long-distance cabling by transmitting multi-mode communication and power on a single, low-cost two-conductor cable. It allows for plug-and-play high-bandwidth Ethernet, flexible power outputs and transparent serial communication at virtually any point in the system. Each BelugaLink supports cable runs in excess of 2 km, with the ability to daisy-chain the links to achieve longer distances.

AI-enabled, In the Cloud or at the Edge

With our AI-enabled vision systems, you can deploy an object detection and identification model directly within a vision system, in a workstation on land, or in the cloud. Use one of our basic AI models immediately while you collect datasets for tailored training. Our always-connected cabled systems allow you to rapidly iterate and update your model over the Internet, even when the hardware is deep under water.

Observatories by View Into The Blue®



View Into the Blue® specializes in the design, development and installation of capable, yet, affordable cabled aquatic observatory systems. Our observatories are typically centered around one or more live-streaming, self-cleaning vision systems, such as the **Octopus** or the **Angler**. When moored on the bottom or affixed to existing infrastructure, these capable instruments produce high-definition real-time visual data and/or time-lapse imagery for many years. The visual data can be supplemented with underwater audio, controllable lighting and standard or research-grade physical or chemical sensor instruments. Our robust, low-maintenance observatory systems have been installed worldwide, from tropical reefs to freshwater lakes, on industrial equipment, and even in Antarctica.

The simple infrastructure for a View Into The Blue® observatory typically begins on shore, where a small electronics enclosure is connected to Ethernet and power. A robust submersible cable is then routed over the bottom of the water body to connect to the underwater instruments. Once connected, our IP-based communication protocols permit real-time control, monitoring and data collection from within the local area network, or over the internet from anywhere in the world.

With **BelugaLink**, View Into the Blue® systems support live high-definition video, audio and sensor data over a single two-conductor cable up to 2 km or longer. For remote locations, we provide systems that use solar power, batteries and very long-distance wireless communication links.

Your View Into the Blue® observatory will become your window beneath the waves. Contact us to see what you've been missing.

CleanSweep™ Patented Self-Cleaning Technology

Biofouling, which is the settlement and growth of aquatic organisms on submerged engineered surfaces, is by far the greatest challenge to long-term underwater visual monitoring. In most aquatic environments, submerged optical surfaces will become completely obscured by biological growth in only days or weeks following immersion.

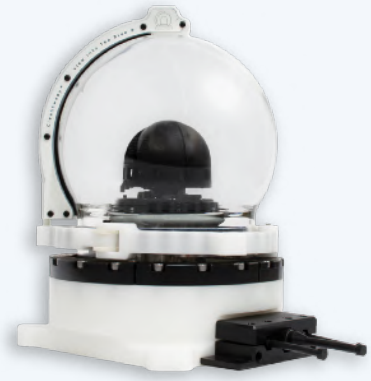
View Into The Blue®'s **CleanSweep™** housings solve the biofouling problem with a patented wiper-based lens-cleaning system. With automated, periodic mechanical disturbance of the optical surfaces, the initial attachment and further growth of adherent organisms is dramatically reduced. Depending on the biofouling potential of the site, CleanSweep™-protected housings may not require any additional human intervention for months or even years at a time. Importantly, our self-cleaning technologies use no toxic chemicals and have no adverse impacts on marine life.

Developed nearly two decades ago, and with over one-hundred long-term deployments around the world, CleanSweep® is time-tested and field-proven technology. View Into The Blue® remains the only provider of robust self-cleaning vision systems suitable for long-term deployment in aquatic environments.

A View Into The Blue® Octopus vision system at the time of immersion a high-biofouling tropical marine environment.

Protected by CleanSweep™ technology, the optical surfaces of the vision system remained clean and clear for many years.

View Into The Blue® Product Spotlight

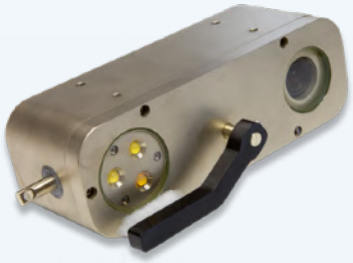


Octopus

Flagship Self-Cleaning PTZ Vision System

Time-tested, yet, state-of-the-art. You'll never miss the action with 360° pan-tilt-zoom, superb optics and our patented CleanSweep™ cleaning system.

360° PTZ • 1080p @ 30fps • 50 m depth



Angler

All-In-One Self-Cleaning Vision System

Capable and compact, with an integrated illuminator. With remote control of focus, zoom and rotation around one axis, it's the ideal system for monitoring subsea assets.

210° Pan or Tilt • 4K @ 60fps • 1,000 m depth

Pelagia

Versatile Self-Cleaning Illuminator

A compact illuminator envisioned especially for long-term deployments. The perfect primary light source for round-the-clock monitoring of aquatic environments.

8K lumens • Dimmable • 3,000 m depth

Beluga

Ethernet and Serial Communications Extender

Flexible power input and outputs, long-distance Ethernet and transparent serial communications over a single two-conductor cable. Adds BelugaLink to any application.

90 Mbps • Selectable VDC output • 2 km per BelugaLink

Selected Success Stories

McMurdo Oceanographic Observatory – McMurdo Sound, Antarctica

First-of-its-kind underwater research platform in Antarctica

- **System:** Octopus HD self-cleaning PTZ vision system, integrated broadband research hydrophone and third-party seawater sensors, VITB lighting, power and communication infrastructure, on concrete moorings at 21 m depth.
- **Challenges:** Under 4 m-thick solid sea ice, -2°C, maintenance access only 2 months/year, government network security requirements, provide 24/7 remote access from the US.

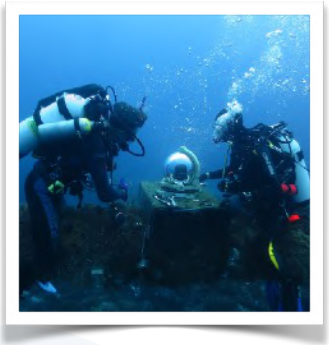
Busselton Jetty Camera – Busselton, Western Australia, Australia

Fish and ocean condition monitoring, tourist attraction

- **System:** Angler HD self-cleaning vision system, first continuous underwater visual monitoring in western Australia, mounted on a piling on the end of a historic 2-km jetty, 5 m depth.
- **Challenges:** High-energy ocean environment, 2-km network link length, provide a platform for developing site-specific AI fish identification.

Frying Pan Shoal Tower – 50 km Offshore of North Carolina, USA

Public engagement project of Explore.org



- **System:** Two Octopus HD self-cleaning vision systems on underwater supports of an offshore tower, two terrestrial cameras, solar power & redundant powering systems with remote power management, wireless backhaul to shore, on tower supports, 15 m depth.
- **Challenges:** Extreme high-energy offshore conditions, very long distance wireless communications to shore.

Selected Success Stories

Bahia Honda Observatory – Bahia Honda State Park, Florida, USA

Research & outreach program with Florida State Parks

- **System:** Octopus HD self-cleaning 360° PTZ vision system, fully-autonomous remote solar and wind-powered infrastructure, wireless backhaul to State Park, installed on FDOT bridge structures above and below the waterline, 7 m depth.
- **Challenges:** high current environment, high biofouling, rubbing behavior of large predatory fishes, hurricanes and regular adverse weather.

East End Reef Monitoring System – Grand Cayman, Cayman Islands

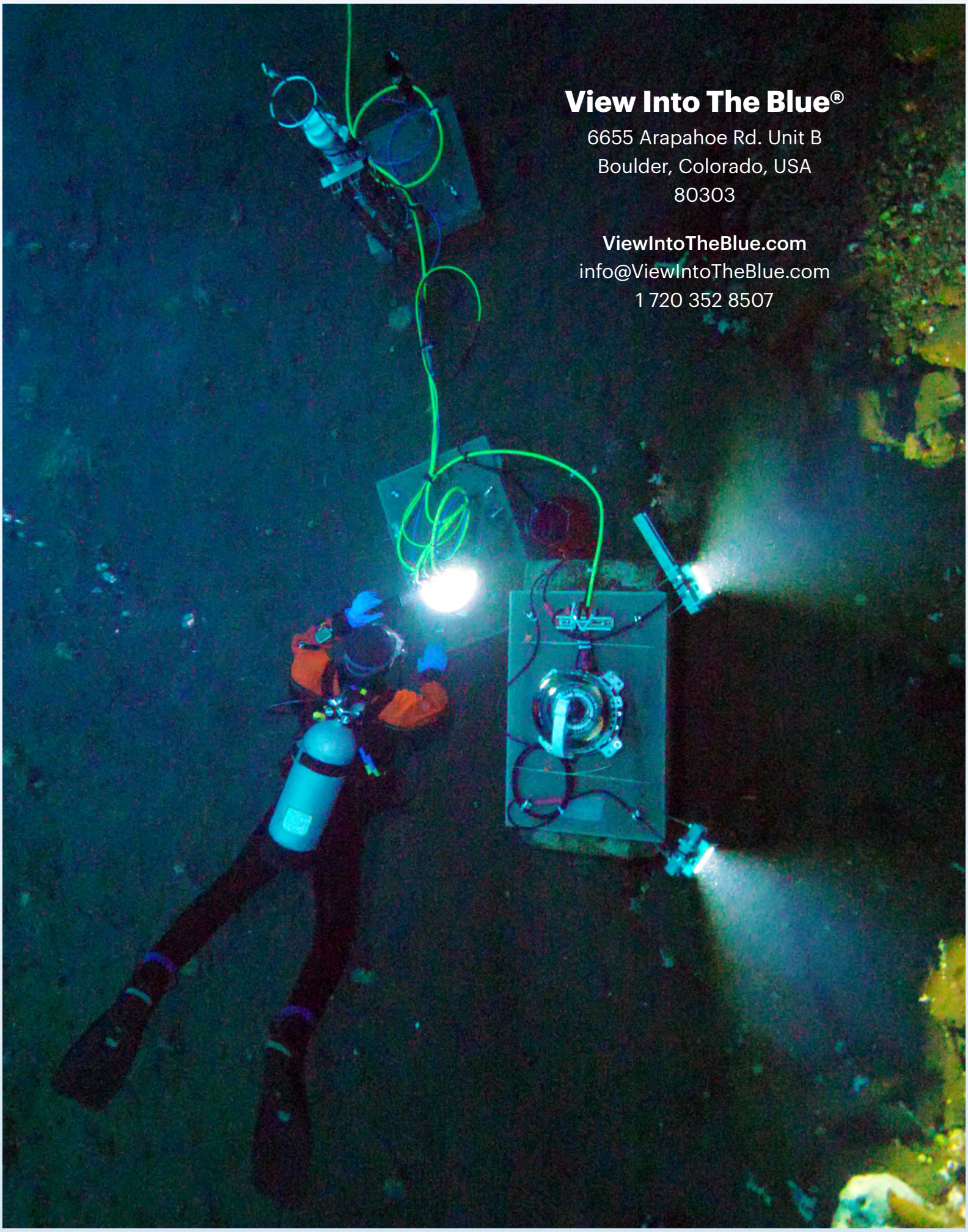
Camera for monitoring coral spawning and artificial reef growth

- **System:** Two Octopus HD self-cleaning vision systems at different depths, fully-autonomous on-site floating solar and battery powered surface support system, wireless backhaul to shore, on concrete moorings at 5 and 25 m depth.
- **Challenges**: Remote location with limited infrastructure nearby, very high biofouling environment, hurricanes and regular adverse weather.

Coral Gardners Nursery Camera – Mo'orea, French Polynesia

AI-empowered monitoring of coral nursery

- **System:** Angler HD self-cleaning vision system, hardware-accelerated AI for fish detection, tracking coral growth and coral pedigree, low-impact mooring at 2 m depth.
- **Challenges**: Remote location, low internet bandwidth, identifying a unique assemblage of fish species.



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