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Global Buoy-based Water Quality Monitoring System Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Buoy-based Water Quality Monitoring System market size was valued at US$ 257 million in 2025 and is forecast to a readjusted size of US$ 413 million by 2032 with a CAGR of 6.8% during review period.

A Buoy?based Water Quality Monitoring System is a floating platform?type online monitoring solution designed to continuously and autonomously monitor water quality parameters in natural and engineered water bodies. Integrated onto a buoy structure are multiple sensors for parameters such as pH, dissolved oxygen (DO), conductivity, turbidity, temperature, and nutrient levels, along with a data acquisition and communication system. These systems are typically powered by solar energy and transmit collected water quality data wirelessly or through telemetry to a central server or cloud platform in real time. The system’s modular design enables unattended, long?term deployment in lakes, rivers, reservoirs, coastal zones, and other water environments. Key components include the floating buoy body, sensor array, data logger, power supply, positioning/GPS module, and remote monitoring software. Buoy?based systems provide automated, continuous, real?time data for environmental monitoring, pollution detection, ecosystem health assessment, and management decision support. They can operate under varying environmental conditions, support historical trend analysis and alerting functions, and are widely used by environmental protection agencies, research institutions, water utilities, and ecosystem restoration projects.

The buoy?based water quality monitoring system industry stands at a pivotal stage amid accelerating global environmental monitoring initiatives. In recent years, as

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consensus on combating water pollution has strengthened internationally, there has been a marked increase in demand for real?time water quality data from government agencies, research institutions, and enterprises. The automation, real?time capability, and continuous monitoring advantages of buoy systems make them a compelling alternative to traditional manual sampling, particularly in dynamic aquatic environments such as rivers, lakes, and coastal zones. These systems integrate multi?parameter sensors with wireless communication to report data in real time, generating continuous monitoring datasets that aid in formulating scientific water resource management strategies and pollution early?warning systems. In developed regions, stringent environmental regulations and regulatory requirements encourage sustained investment in water monitoring infrastructure, driving industry growth; in developing economies, increasing needs related to industrial wastewater discharge and ecological restoration are being translated into tangible deployments. Overall, the market’s expansion is closely tied to global emphasis on sustainable water resource monitoring, a core driver of industry growth.

At the same time, technological innovation plays a critical role in propelling the buoy?based water quality monitoring market. With the maturation of IoT, cloud platforms, big data, and AI, the analytical capability, automation, and user?friendliness of monitoring systems continue to improve. Advanced sensor?based buoy systems not only enable higher?precision measurement of water quality parameters but also process data in real time and output trend analysis, offering more reliable support for risk management. Additionally, technologies such as solar power, modular design, and remote maintenance make systems more suitable for remote deployment and unattended operation, reducing long?term operating costs. These technological trends are transforming buoy systems from standalone hardware into intelligent monitoring platforms, increasing their roles in smart water management, marine ecological protection, and urban water infrastructure.

However, industry development also faces complex challenges and risks. First, the high initial investment required for advanced buoy systems poses a barrier for budget?constrained public agencies and small to medium?sized enterprises. Reports indicate that deploying a multi?parameter, highly reliable buoy system can cost several tens of thousands of USD, and maintenance and calibration require specialized teams, limiting widespread adoption in developing regions. Moreover, aquatic environments are inherently complex; sensors exposed long?term can suffer from biofouling, physical damage, and drift, affecting data accuracy. This necessitates more durable designs and maintenance plans, increasing overall system operational costs. Data security and interoperability are also critical concerns—large volumes of monitoring data require

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reliable networks and robust security measures, and in regions with limited network infrastructure data transmission may be constrained. Although these challenges exist, technological advancements and scale effects are gradually reducing their impact on market growth.

Regarding downstream demand, applications of buoy?based water quality monitoring are expanding into broader sectors. While traditional environmental protection agencies and water utilities remain core markets, the promotion of smart cities and intelligent water management has encouraged industrial enterprises, agricultural operations—especially large aquaculture facilities—research organizations, and marine engineering projects to incorporate real?time water quality monitoring as an integral component of their operations. In aquaculture, real?time water quality data helps improve production efficiency and reduce risk, turning water monitoring from purely an environmental requirement into a productivity optimization tool. Coastal tourism zones, port facilities, and international environmental projects are also including environmental monitoring in regional development plans, further stimulating demand. In the long term, downstream demand trends point to a preference for more intelligent, integrated, and low?maintenance systems, with growing needs for data service platforms, predictive models, and cross?platform data integration capabilities.

In summary, the buoy?based water quality monitoring industry holds significant long?term growth opportunities, supported by strengthened environmental regulation, technological innovation, and expanding downstream demand. Despite challenges related to cost, maintenance, and data security, the impact of these obstacles is diminishing with technological maturity and widespread deployment. Industry participants should focus on technological upgrades, differentiated product design, and cross?industry data analysis capabilities to capture market growth and achieve sustainable expansion.

This report is a detailed and comprehensive analysis for global Buoy-based Water Quality Monitoring System market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

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Global Buoy-based Water Quality Monitoring System market size and forecasts, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Buoy-based Water Quality Monitoring System market size and forecasts by region and country, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Buoy-based Water Quality Monitoring System market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Buoy-based Water Quality Monitoring System market shares of main players, shipments in revenue ($ Million), sales quantity (K Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Buoy-based Water Quality Monitoring System

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Buoy-based Water Quality Monitoring System market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Xylem, YSI (a Xylem brand), LG Sonic, WaterITech, Bluesonde, F&V Group, Suzhou Asenhe Environmental Protection Technology Co., Ltd., Hangzhou FPI Instruments / Juguang Technology (Hangzhou) Co., Ltd., Shandong Trina Solar Environment, Shenzhen Care and Love Technology Co., Ltd., etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

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Market Segmentation

Buoy-based Water Quality Monitoring System market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

30 W Solar Panel

60 W Solar Panel

72 W Solar Panel

Others

Market segment by Manufacturing Process

Modular Assembly

Integrated Cast / Molded

Hybrid Construction

Market segment by Physical Composition

Plastic / Polymer Body

Metal / Alloy Body

Composite Material Body

Market segment by Delivery

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Pre-assembled Ready-to-Deploy

Kit / Modular Delivery

Custom-Built / ODM

Market segment by Application

River

Lake

Reservoir

Others

Major players covered

Xylem

YSI (a Xylem brand)

LG Sonic

WaterITech

Bluesonde

F&V Group

Suzhou Asenhe Environmental Protection Technology Co., Ltd.

Hangzhou FPI Instruments / Juguang Technology (Hangzhou) Co., Ltd.

Shandong Trina Solar Environment

Shenzhen Care and Love Technology Co., Ltd.

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Chongqing Haidon Technology Co., Ltd.

Hangzhou iWater Environmental Technology Co., Ltd.

Fuguang Water Technology Co., Ltd.

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Buoy-based Water Quality Monitoring System product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Buoy-based Water Quality Monitoring System, with price, sales quantity, revenue, and global market share of Buoy-based Water Quality Monitoring System from 2021 to 2026.

Chapter 3, the Buoy-based Water Quality Monitoring System competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Buoy-based Water Quality Monitoring System breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

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Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Buoy-based Water Quality Monitoring System market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Buoy-based Water Quality Monitoring System.

Chapter 14 and 15, to describe Buoy-based Water Quality Monitoring System sales channel, distributors, customers, research findings and conclusion.

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Contents

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2 MANUFACTURERS PROFILES

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3 COMPETITIVE ENVIRONMENT: BUOY-BASED WATER QUALITY MONITORING SYSTEM BY MANUFACTURER

4 CONSUMPTION ANALYSIS BY REGION

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List Of Tables

LIST OF TABLES

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List Of Figures

LIST OF FIGURES

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