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Sustainable Aquaculture In Regenerative Systems Market Forecasts to 2032 – Global Analysis By Product Type (New Production Methods, Sustainable and Alternative Feeds and Fish Health Products & Services), Ingredient, Species, Environment and By Geography

https://marketpublishers.com/r/S12F917DDED4EN.html
Date: August 2025
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: S12F917DDED4EN

Abstracts

According to Stratistics MRC, the Global Sustainable Aquaculture in Regenerative Systems Market is accounted for $902.39 million in 2025 and is expected to reach $2096.82 million by 2032 growing at a CAGR of 12.8% during the forecast period. Sustainable aquaculture in regenerative systems is a progressive method that actively improves ecosystem health while reducing environmental harm. Regenerative systems incorporate concepts like water recirculation, polyculture, and nutrient recycling to restore biodiversity and enhance soil and water quality, in contrast to traditional aquaculture, which can contribute to pollution and habitat degradation. These systems frequently integrate aquaculture and agriculture, as in aquaponics, which creates a closed-loop, zero-waste model by using fish waste to support plant growth. Moreover, sustainable aquaculture in regenerative systems provides a robust way to satisfy the world's demand for seafood while promoting environmental restoration and climate resilience by coordinating food production with ecological balance.

According to the World Wildlife Fund (WWF), seaweed farming—an integral part of regenerative aquaculture—can produce 100–200 tons of biomass per hectare without using arable land, freshwater, or fertilizers; as it grows, it absorbs excess carbon and nutrients, reduces eutrophication, and enhances marine biodiversity.

Market Dynamics:

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Driver:

Growing protein demand worldwide

The need for sustainable and reasonably priced protein sources will rise dramatically as the world's population is expected to surpass 9.7 billion people by 2050. Approximately 17% of the world's animal protein intake already comes from aquatic foods, especially fish and seafood, according to the FAO. In many areas, traditional capture fisheries have reached or surpassed sustainable limits, so aquaculture will need to be the source of future growth. Additionally, fish also have a higher feed conversion ratio (FCR) than cattle or poultry, which makes aquaculture a viable way to promote food security in both developed and developing countries.

Restraint:

Absence of skilled workers and technical expertise

The technical complexity of regenerative aquaculture systems necessitates specific expertise in fields like engineering, nutrient cycling, water chemistry, microbiology, and multispecies farming. There is limited access to educated professionals and educational programs in many places, particularly in developing nations. This lack of technical capability raises the risk of operational failures by making it challenging for newcomers to successfully adopt and manage regenerative systems. Furthermore, many aquaculture workers may be reluctant or unprepared to embrace these more integrated and scientifically driven approaches because they are used to monoculture or traditional methods.

Opportunity:

Growth of vertical and urban aquaponics systems

Growing interest in local food production is being fueled by urbanization, and regenerative aquaculture systems, like aquaponics, are perfect for urban settings. These water-efficient, stacked systems, which can be run on rooftops, in basements, or inside vertical farms, enable the simultaneous cultivation of fish and vegetables. Urban aquaponics systems can now be automated, remotely monitored, and customized for microclimates owing to the growing availability of smart technologies and Internet of Things solutions. Moreover, this presents a significant chance for developers,

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municipalities, and entrepreneurs to incorporate food production into corporate sustainability initiatives, urban renewal projects, or smart city designs.

Threat:

Competition from industrial and conventional aquaculture

Even though people are becoming more conscious of sustainability, traditional aquaculture systems—particularly intensive monocultures of tilapia, salmon, and shrimp—continue to rule the market because of their established infrastructure, economies of scale, and lower short-term production costs. These systems frequently function in supply chains that prioritize volume over ecological value and are heavily subsidized. However, regenerative aquaculture usually produces smaller volumes in the beginning and has not yet fully monetized its advantages, such as improving water quality or restoring biodiversity. Because of this, regenerative producers have to contend with fierce competition in terms of pricing and market access, especially in areas where sustainability premiums are absent or very low.

Covid-19 Impact:

The market for sustainable aquaculture in regenerative systems was significantly impacted by the COVID-19 pandemic, albeit in a mixed way. On the one hand, aquaculture operations, especially small and medium-sized businesses that depend on fresh, short-cycle sales, were negatively impacted by labor shortages, global supply chain disruptions, and restricted market access. During lockdowns, many regenerative aquaculture producers encountered difficulties sourcing inputs such as feed and fingerlings, transporting goods, and keeping their systems operating. However, the pandemic brought attention to weaknesses in the world's food systems and heightened consumer interest in locally produced, resilient, and sustainable food, which raised awareness of and demand for regenerative aquaculture models like integrated systems and aquaponics.

The amino acids segment is expected to be the largest during the forecast period

The amino acids segment is expected to account for the largest market share during the forecast period. Aquatic farmed species depend on amino acids, which are necessary building blocks of protein, for healthy growth, muscle development, and immunological function. In regenerative systems, the use of synthetic or crystalline amino acids such as lysine, methionine, and threonine is essential to make up for nutrient deficiencies as

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feed formulations move toward plant-based and sustainable options. These additives support animal health without the need for antibiotics by lowering nitrogen excretion, increasing feed conversion ratios, and more. Moreover, they are the most widely used functional feed additives in modern sustainable aquaculture due to their biological necessity, adaptability to low-fishmeal diets, and widespread use.

The seaweed & algae segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the seaweed & algae segment is predicted to witness the highest growth rate. Seaweed farming is expanding quickly due to the rising demand for plant-based protein, functional foods, biofuels, and natural additives worldwide. Seaweed farming is one of the most environmentally friendly and regenerative types of aquaculture because it doesn't require feed, fertilizer, or freshwater like animal aquaculture does. It directly supports the objectives of regenerative ecosystems by absorbing carbon dioxide and excess nutrients, improving water quality, and boosting marine biodiversity. Its adaptability to a variety of sectors, including food, cosmetics, agriculture, and pharmaceuticals, makes this market a sustainable powerhouse that promotes both financial and environmental advantages in regenerative aquaculture systems.

Region with largest share:

During the forecast period, the Asia-Pacific region is expected to hold the largest market share, driven by its abundance of coastline, favorable climate, dominance in the world's aquaculture production, and growing emphasis on sustainable food systems. More than half of the world's production comes from China alone, where important regenerative techniques like seaweed farming, recirculating aquaculture systems, and integrated multi-trophic aquaculture (IMTA) are becoming more and more popular. Additionally, the region's leadership is further reinforced by government assistance, low labor costs, technological advancements, and growing domestic consumption of sustainably produced seafood.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR. Strong public and private investments in cutting-edge aquaculture technologies, rising consumer demand for seafood sourced sustainably, and the quick uptake of land-based systems like aquaponics and recirculating aquaculture systems (RAS) are all

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contributing factors to this growth. Leading initiatives to improve food security and environmental stewardship while lessening the strain on wild fisheries are being undertaken by the United States and Canada. Furthermore, market expansion is also being accelerated by policies that support climate-resilient food systems and a move toward low-impact, regenerative practices like integrated multi-trophic aquaculture (IMTA).

Key players in the market

Some of the key players in Sustainable Aquaculture In Regenerative Systems Market include Aquaculture Technologies Asia Limited, Triton Anchor, Ynsect, Aquapulse Inc, Manjeera Aqua Technologies Pvt Ltd, Leroy Seafood Group ASA, NovoNutrients Inc, Cooke Aquaculture, InnovaFeed, Alpha Group, Nippon Suisan Kaisha Ltd., Cermaq Group AS, Ace Aquatec Inc, Marine Harvest ASA and Kampachi Farms.

Key Developments:

In March 2025, Cooke Aquaculture has agreed to buy the Canadian subsidiary of former land-based salmon producer AquaBounty. The CAD 3 million deal, worth approximately CAD 1.58 million to AquaBounty after its debts to Cooke subsidiary Kelly Cove Salmon are taken into account, includes AquaBounty Canada’s physical property and a transfer to KCS of all of AQB’s Corporate registered intellectual property.

In January 2025, Innovafeed and Agryco have entered into a commercial partnership to distribute Hilucia™ Frass. This agreement enables Innovafeed to expand access to its organic fertilizer, while Agryco integrates Hilucia™ Frass into its agricultural product offerings. This partnership with Agryco reflects our commitment to delivering practical and sustainable solutions to the agricultural sector.

In April 2023, NovoNutrients has signed a Technology Development Agreement (TDA) with global energy major Woodside Energy under which Woodside will fund up to USD 3 million, contingent on NovoNutrients meeting key development milestones. The funding supports the design and operation of a larger pilot-scale system, advancing the transition from lab-scale trials to commercial-grade plant infrastructure.

Product Types Covered:

New Production Methods

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- Sustainable and Alternative Feeds
- Fish Health Products & Services

Ingredients Covered:

- Amino Acids
- Phosphates
- Vitamins
- Acidifiers
- Carotenoids
- Enzymes
- Mycotoxin Detoxifiers
- Probiotics
- Minerals
- Antioxidants
- GRAS (Generally Recognized As Safe) Substances
- Non-antibiotic Immunostimulants

Species Covered:

- Salmon and Trout
- Tilapia
- Carp

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- Catfish
- Crustaceans
- Mollusks
- Seaweed & Algae
- Other Species

Environments Covered:

- Freshwater
- Marine (Saltwater)
- Brackish Water

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy

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- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar

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South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Contents

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10 KEY DEVELOPMENTS

11 COMPANY PROFILING

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11.15 Kampachi Farms

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List Of Tables

LIST OF TABLES

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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