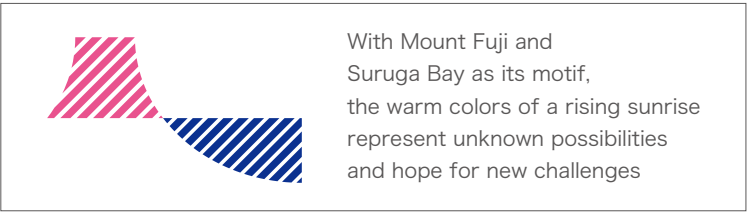


Cabinet Office Grants for Revitalization of Regional universities and industries
Suruga Bay Marine DX Advanced Hub initiative

駿河湾海洋DX プロジェクト

Suruga Bay Marine DX Advanced Hub Initiative



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Suruga Bay Marine DX – Shaping the Future of the Ocean

Suruga Bay, Japan’s deepest bay, is globally recognized for its uniquely distinctive topography and ecosystems. A new project has begun to cultivate future industrial models that harness regional marine resources, with this one-of-a-kind ocean as its stage.

The Suruga Bay Marine DX Advanced Hub Initiative aims to generate new value in the marine industry by leveraging advanced data science. When the unknown depths of the ocean merge with cutting-edge technology, entirely new possibilities emerge.

Through this initiative, we will establish Shizuoka as an international hub for marine research, technological development, and industrial innovation.



NANBA Takashi, Mayor of Shizuoka City

The Suruga Bay Marine DX Advanced Hub Initiative is a bold and unprecedented endeavor that brings together academia, industry, and government to advance cutting-edge research and development in the marine field-one of Shizuoka’s key strengths-and to cultivate practical, skilled talent. In fiscal year 2024, this project was launched after being selected for the Cabinet Office’s “Regional University and Industry Creation Grant Program,” in collaboration with Shizuoka Prefecture. I would like to express my sincere gratitude to all those involved. Suruga Bay, located right in front of Shizuoka City, reaches depths of 2,500 meters just a few dozen kilometers from the coast , offering a marine environment that is both geographically and biologically rare. The area around Shimizu Port has long been home to a concentration of research and educational institutions, as well as marine-related companies. By leveraging the power of this “place,” we can attract global knowledge and talent, and I am confident that Shizuoka can become a world-class hub for marine research and development, industry, education, and human resource development. This project will serve as the core of that vision. For the bright future of Shizuoka, and to address global-scale marine challenges, we will work together in co-creation with all stakeholders



HIRAKI Sho, Vice Governor of Shizuoka Prefecture

In fiscal year 2019, Shizuoka Prefecture launched the MaOI Project, aiming to create new industries and preserve the marine environment by utilizing cutting-edge marine biotechnology in t he ocean and fisheries sectors. We established the MaOI Institu te as the driving body of the project, supporting the creation of technological seeds, research and development, and commercialization by leveraging the advanced expertise and state-of-the-art facilities of universities and research institutions to address urgent challenges faced by the fisheries and other industries. Currently, through the Suruga Bay Marine DX Advanced Hub Initiative, we are collaborating with a diverse range of stakeholders-including Shizuoka City, Shizuoka Institute of Science and Technology, Shizuoka University, Tokai University, and local companies-to apply advanced technologies in research and development, industrial applications, and human resource development, with Suruga Bay serving as the primary demonstration field. We will actively build upon the systems and achievements developed through the MaOI Project, while also expanding the outcomes of new initiatives such as Marine Informatics throughout the prefecture. Through these efforts, we aim to establish Shizuoka as a global hub for the promotion of the marine industry and the preservation of the marine environment.



HASHIMOTO Masahiro, Executive Director of the Suruga Bay Marine DX Advanced Hub Initiative

The ocean has long provided humanity and the planet with a wealth of benefits, including biological resources. At the same time, concerns about the marine environment-such as plastic pollution-have grown in recent years, and international interest in the sustainable use of the ocean is increasing. In Shizuoka Prefecture, marine-related industries account for 7 .5% of the total industrial sector (according to estimates by Hosei University), more than three times the national average. This makes the region ideally suited for the development of new industries within the Blue Economy. Against this backdrop, the Shizuoka Marine Open Innovation (MaOI) Project was launched in 2019, promoting the commercialization of marine-related technologies such as fisheries, aquaculture, ocean observation, and equipment development through collaboration among regional and external stakeholders from academia, industry, and government. Now, the Suruga Bay Marine DX Advanced Hub Initiative has officially begun. This is a groundbreaking project that responds to global developments surrounding the ocean, regional aspirations for new industry creation, and the growing need for university-based research and human resource development in marine DX. Through the advancement of this initiative, we are committed to fostering new industries in this region and driving innovative regional development.

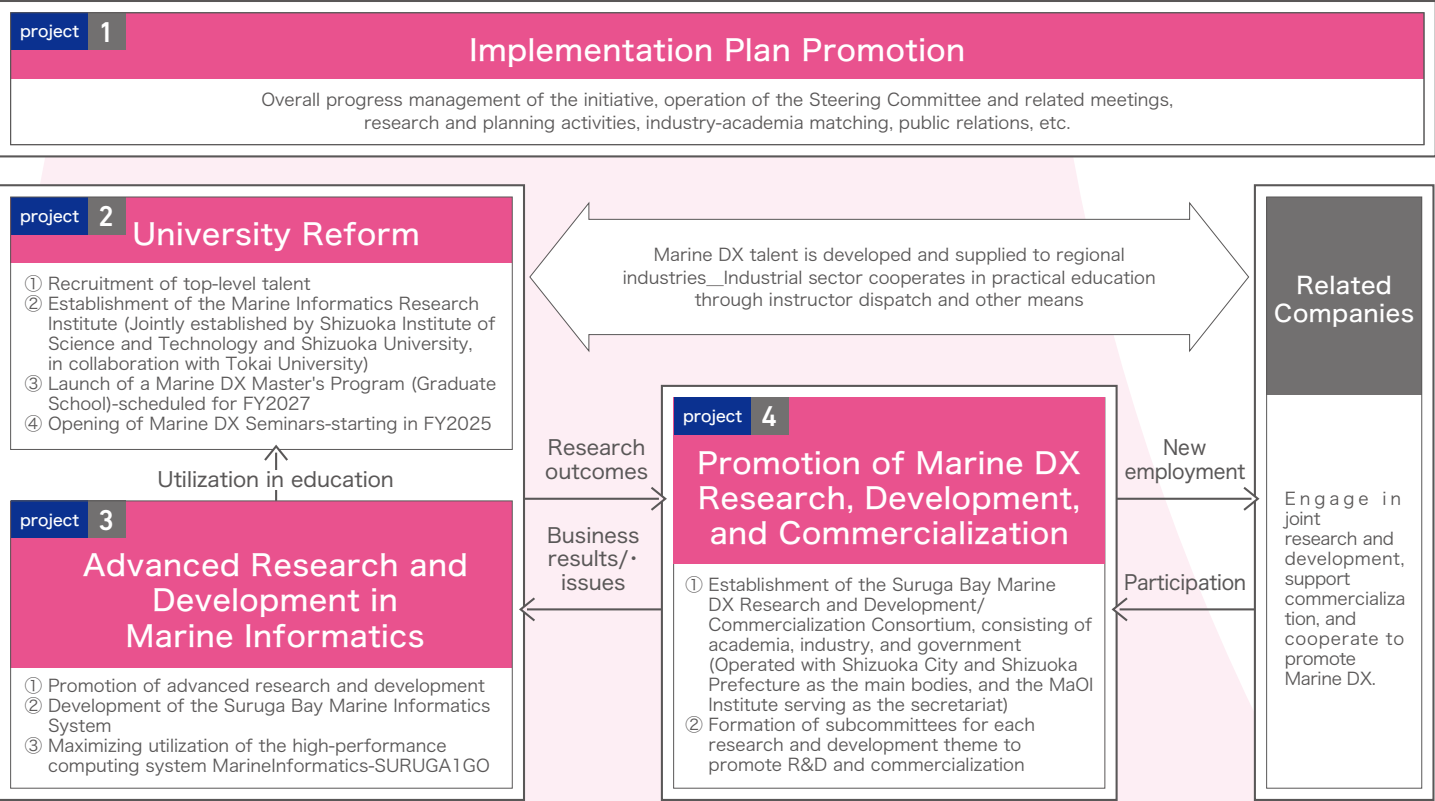
Project information

- Project Title: Suruga Bay Marine DX Advanced Hub Initiative, under the Cabinet Office’s Regional University and Industry Creation Grant Program
- Project Duration: 10 fiscal years, from FY2024 to FY2033· Note: The first 5 years (FY2024-FY2028) will receive national funding support
- Project Budget: Approximately 2 billion yen (for the 5-year national funding support period)

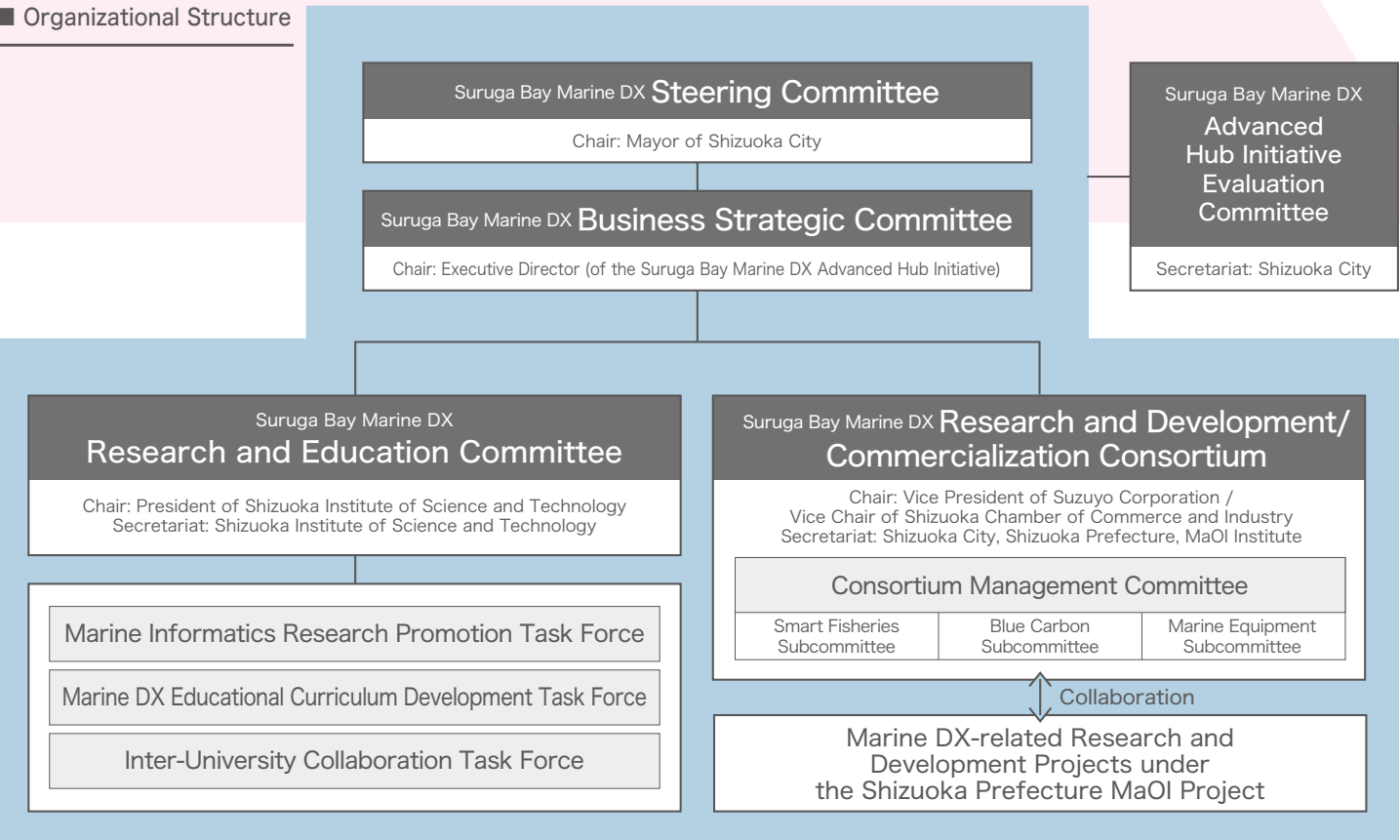
Background Leading to Project Launch

- June 2023: Project discussions begin within the BX Subcommittee of the Shizuoka City Governance Transformation Study Group
- October 2023: Application submitted for the Cabinet Office’s Regional University and Industry Creation Grant Program - Planning Support Project
- January 2024: Selected for the Planning Support Project; planning proceeds with ongoing support from the Cabinet Office
- May 2024: Formal application submitted for the Regional University and Industry Creation Grant Program
- July 2024: Selected for the Grant Program
- September 2024: Official recognition of the Suruga Bay Marine DX Advanced Hub Initiative by the Prime Minister of Japan
- October 2024: Project officially begins

Project Overview



Organizational Structure



Advanced Research and Development in Marine Informatics

Shizuoka Institute of Science and Technology, Shizuoka University, and Tokai University are combining their research strengths to take on the challenge of advanced research and development in Marine Informatics, thereby establishing a foundation for advancing Suruga Bay Marine DX, fostering human resource development, and contributing to the creation of new marine industries in Suruga Bay.

Marine Informatics is a new scientific and technological field that integrates marine science and informatics.

Promotion of Advanced Research and Development

Advanced research in Marine Informatics is driven by four foundational fields: marine information science and engineering, marine observation and communication system network science and engineering, marine biological and ecological science and engineering, and marine industrial science and engineering. Each field generates a wide variety of data tailored to its characteristics, contributing to the construction of a unique Suruga Bay marine dataset. Advanced analytical methods and data processing technologies are developed to extract new insights from these datasets. Based on this new information, the research aims to identify solutions and pathways to address challenges, leading to social implementation and the creation of new industries in Suruga Bay. Currently, 20 advanced research themes are underway across the four foundational fields.

Development of the Suruga Bay Marine Informatics System

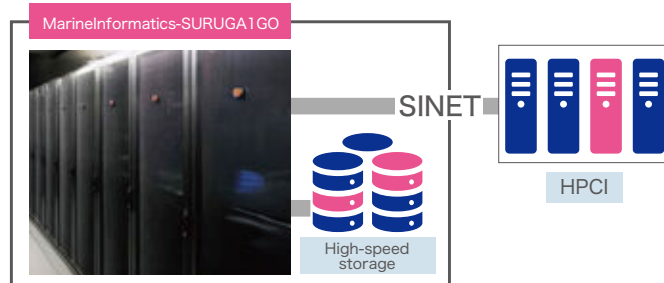
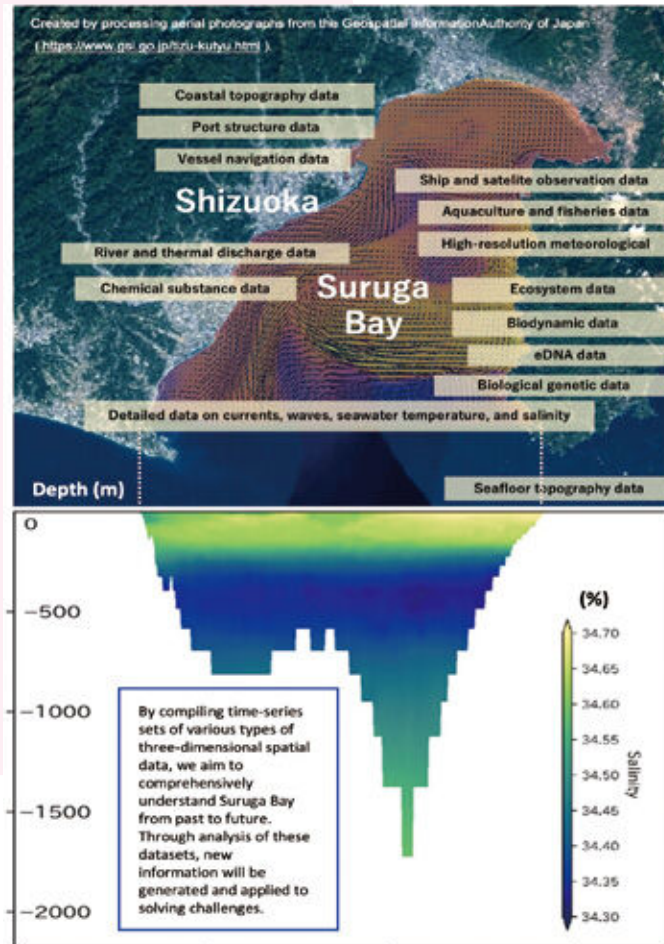
To support the advancement of Marine Informatics research and development, a comprehensive Suruga Bay marine dataset will be enriched and integrated into the Suruga Bay Marine Informatics System, which will provide an environment for effective data utilization. In particular, the ultra-high-resolution simulation-based oceanographic data of Suruga Bay developed through this project-spanning past to future-will be highly original and academically valuable. These datasets are planned to be used in solving the following types of challenges.

Examples of Targeted Challenges

- Aquaculture, understanding of marine biological resources, and catch forecasting for sustainable resource management
- Automated fish species identification for improved operational efficiency and profitability
- Efficient control of renewable energy production
- Optimization of distribution and processing workflows
- Safe and automated navigation in port areas
- Unmanned inspection and management of coastal structures
- Safe and enjoyable marine leisure and sports
- Enhanced disaster avoidance
- Reconstructions of past and present conditions and future projections

Maximizing Utilization of the High-Performance Computing System “MarineInformatics-SURUGA1GO”

MarineInformatics-SURUGA1GO, a high-performance computing system capable of executing large-scale processing such as mathematical analysis, statistical processing, visualization, and machine learning at high speed, is operated and utilized as a core research and development infrastructure for handling the vast and unique data that characterizes Suruga Bay. Looking ahead, with future use by industry in mind, plans are in place to integrate the system with HPCI (High Performance Computing Infrastructure) and connect it to a variety of devices.



Core Resercher,of the Suruga Bay Marine DX Advanced Hub Initiative

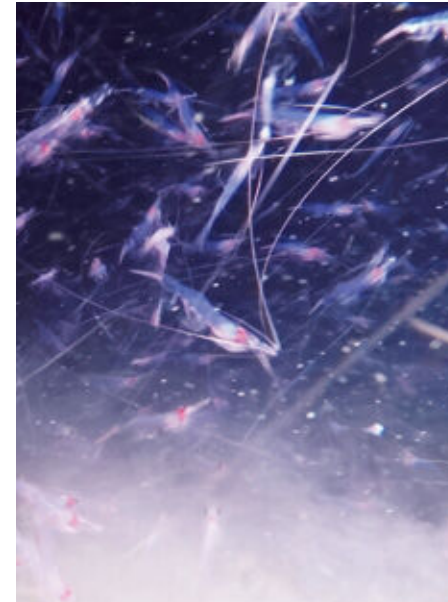
TAKAHASHI Keiko,
Professor, Graduate School, Shizuoka Institute of Science and Technology

I am deeply grateful for the opportunity to be part of this regional revitalization initiative focused on the remarkable Suruga Bay, especially in promoting academic research, developing human resources, and collaborating with industry. In the academic field of marine science, effectively applying the rapidly evolving field of information technology-including AI-requires bold new approaches. One of the most urgent challenges is identifying, collecting, and generating all types of usable data. At the same time, there is a growing need to demonstrate how this data can be used to solve real-world problems. This need is not limited to academia-it is equally pressing in the industrial sector. In response to this challenge, Shizuoka City and Shizuoka Prefecture are taking the lead, with support from the Cabinet Office, and universities, researchers, students, and industry partners are coming together. This initiative welcomes people of all ages and backgrounds. What lies ahead in this collective effort? I hope to share the excitement of that journey with everyone involved as we move this project forward.



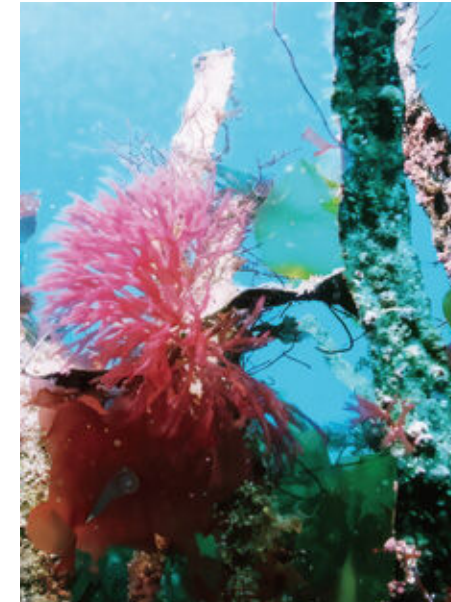
Promotion of Marine DX Research, Development, and Commercialization

To advance the sophistication and added value of regional marine-related industries, the Suruga Bay Marine DX Research and Development/Commercialization Consortium, formed through collaboration among academia, industry, and government, has established three subcommittees: Smart Fisheries, Blue Carbon, and Marine Equipment. These subcommittees conduct joint research and development that leverages the marine environment of Suruga Bay, aiming to promote commercialization and social implementation. In parallel, efforts are underway to expand Marine DX initiatives across sectors and regions through research and development projects within Shizuoka Prefecture's Marine Open Innovation (MaOI) Project.



Smart Fisheries Subcommittee

Sakura shrimp, a symbolic marine product of Suruga Bay, has seen declining catch volumes in recent years, making the realization of sustainable fisheries based on resource conservation an urgent issue. The Smart Fisheries Subcommittee is working to develop technologies for collecting and analyzing high-precision, wide-area data on the resource volume and ecology of sakura shrimp, promoting the “smartification” of fisheries based on scientific insights.



Blue Carbon Subcommittee

Blue carbon, which contributes to global warming mitigation and marine ecosystem conservation, is gaining global attention, and national-level initiatives are actively underway. The Blue Carbon Subcommittee is conducting research into growth conditions for algae suited to the environmental characteristics of Suruga Bay and is working to establish efficient and stable algae aquaculture technologies using DX.



Marine Equipment Subcommittee

To efficiently obtain precise data from vast ocean areas, it is essential to advance and enhance observation technologies and make them more intelligent. The Marine Equipment Subcommittee is engaged in the demonstration and development of new communication technologies and operational equipment that enable observation of biological activity, topography, and ocean currents across diverse marine environments.

Marine DX-related Research and Development Projects under the Shizuoka Prefecture MaOI Project

In collaboration with the Suruga Bay Marine DX Research and Development/Commercialization Consortium, the following initiatives are being pursued:

- Research for generating technological seeds
- Feasibility studies for commercialization
- Promotion of marine technology development
- Acceleration of commercialization

Chair of the Suruga Bay Marine DX Research and Development/Commercialization Consortium

TAKAHASHI Akihiko,
Vice President of Suzuyo Corporation /Vice Chair of the Shizuoka Chamber of Commerce and Industry

The Suruga Bay Marine DX Research and Development/Commercialization Consortium promotes research and development aimed at achieving social implementation and commercialization. Shizuoka is home to a wide range of marine and port-related industries and services-including fisheries and aquaculture, logistics and shipping, manufacturing, and construction-making it a region with strong potential and high expectations for industrial advancement through the introduction of Marine DX technologies. Shimizu Port and Suruga Bay also serve as excellent demonstration fields, and their use is expected to contribute to the development of a Blue Economy hub and the Creation of the regional economy. By continuing research and development in this region, we anticipate further concentration of advanced research institutions and companies, leading to new collaborations and the creation of new value. We will encourage participation from a diverse range of companies both within and outside the region, clarify industry needs, and steadily advance the generation of promising themes and the demonstration and research necessary for commercialization. At the same time, we will deepen collaboration with universities and local governments, strengthen regional systems, and actively support the development of the next generation of talent. Through these efforts, we aim to establish Shizuoka as a model region in Japan for the creation of a sustainable marine industry.

