

Open Innovation for Sustainable Growth

The Maruha Nichiro Group, under our brand statement, "For the ocean, for life," has been working to solve global and human issues to enrich people's lives and the earth. From now on, we will continue to work on co-creation with entrepreneurs and start-up companies who have high aspirations and technologies to solve deep issues*, without limiting ourselves to our existing business areas. By accelerating the exploration of innovation that is not bound by traditional frameworks, we will achieve sustainable growth for both the Maruha Nichiro Group and society.

*Deep issues: Critical issues common to all human beings, avoiding dangers to life, securing water and nutrition, avoiding diseases, living comfortably, and procreating, while protecting the global environment.

1 Launched joint research and development of "fish cell culture" with IntegriCulture Inc.

By 2050, the world's population is expected to reach 9.7 billion, and FoodTech is attracting attention worldwide as a means to compensate for food shortages associated with population growth. An example of this is "cultured meat," also known as "clean meat." The Maruha Nichiro Group, with our mission to provide a sustainable supply of marine resources, launched a joint research project with IntegriCulture Inc. (Head office: Bunkyo-ku, Tokyo) in August 2021 with the aim of establishing and commercializing "fish cell culture" technology.

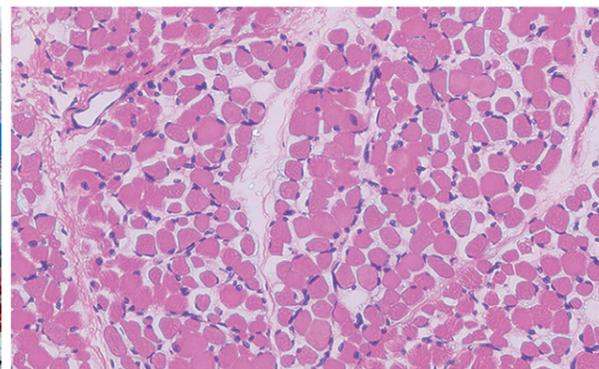
In this joint research, the Maruha Nichiro Group is responsible for providing the live fish (cells) needed for the research, and IntegriCulture Inc. is providing its own

food-grade culture medium and the CulNet System™, which is newly extended to fish cells. Our goal is to commercialize cultured fish meat. Through these activities, by offering food products made with cell culture technology at a price range that is accessible for consumers, the Maruha Nichiro Group aims to realize the world's fastest commercial production of cultured fish meat and provide the next generation of sustainable fish protein in the future.

First, through basic research for one year, once we have determined the possibility of establishing fish cell culture technology, we will promote activities to commercialize the technology in three to five years.



Culture medium



Culture cells



2 Participation in the "Real Tech Global Fund 1 Limited Partnership"

In April 2021, Maruha Nichiro Corporation participated in the "Real Tech Global Fund*" (official name: "Real Tech Global Fund 1 Limited Partnership") established by Real Tech Holdings Co.,Ltd. (Head Office: Sumida-ku, Tokyo)

For Maruha Nichiro Group to transform itself into an organization that can compete for the next 100 years, we must boldly take on the challenges of unknown fields and create an environment where diverse human resources can fully demonstrate their abilities.

Through the investment in the Real Tech Global Fund,

we aim to accelerate cooperation with food and marine-tech companies in Southeast Asia and the development of technologies that have been dormant within Maruha Nichiro. We also aim to initiate new projects that the Maruha Nichiro Group has not been able to undertake previously, and to build a business model that can give back to society while at the same time earning sustainable profits.

*Real Tech Global Fund: A fund that aims to solve "deep issues," the most pressing global issues facing humanity, by conducting investment and nurturing activities in real tech ventures in Southeast Asia for sustainable development

3 Collaboration with the Fisheries Research and Education Agency (FRA) for Breeding of Egg-to-harvest Bluefin Tuna

To protect marine resources and to ensure that gifts from the ocean do not disappear from our tables, the Maruha Nichiro Group took on the challenge of realizing the first egg-to-harvest bluefin tuna in the private sector. In 2010, the Maruha Nichiro Group successfully became the first private company to produce egg-to-harvest bluefin tuna and began full-scale commercial shipments in 2015. In 2020, we established the Maruha Nichiro Aquaculture Technology Development Center in the city of Minami-satsuma, Kagoshima Prefecture, and are working to improve breeding and egg production technologies for aquaculture fish.

In March 2021, we signed a basic agreement with the National Research and Development Agency, Japan Fisheries Research and Education Agency (located in the city of Yokohama, Kanagawa Prefecture, hereinafter, "FRA") to develop basic and applied technologies for breeding egg-to-harvest bluefin tuna.

At its research sites in Nagasaki and Amami Oshima, FRA conducts basic development research on egg-to-harvest bluefin tuna using Japan's only onshore tanks for bluefin tuna parent fish and vast outdoor breeding facilities. In particular, FRA is leading research in the field of breeding Japanese bluefin tuna, including the development of egg-retrieval technology through artificial environmental control and the elucidation of whole genome information.

The Maruha Nichiro Group and FRA intend to conduct specific joint research by leveraging each other's knowledge, facilities, and human resources. Through systematic crossbreeding using genome analysis and other methods, we aim to realize the breeding of parent fish with superior characteristics in terms of production, such as growth and disease resistance, and to demonstrate our comprehensive capabilities for the development of sustainable fishery resources.



Maruha Nichiro Aquaculture Technology Development Center



Onshore tank for bluefin tuna parent fish