



FURUNO's maritime electronics equipment fitted in the Holland America Line cruise ship MS Noordam

Fish Finders Point the Way for Future Fishing

Around seventy years ago, two Japanese brothers developed a device to detect the location of fish underwater using ultrasonic wave technology. Today their company's products are used around the world.

TAKASHI SASAKI

HEADQUARTERED in Nishinomiya City, Hyogo Prefecture, Furuno Electric Co., Ltd. (FURUNO) is a leading manufacturer of marine navigation and communications equipment with sales offices in more than eighty countries around the world. In 1938, FURUNO was launched as a small family-owned radio sales and repair shop in Kyushu's Nagasaki Prefecture. A major turning point in its growth came in 1948, when its founder succeeded in commercializing the world's first practical fish finder while undertaking the work of outfitting electronics on fish and cargo vessels.

"FURUNO's founder Kiyotaka Furuno (1920-2013) began developing a fish finder in 1945, when he acquired an ultrasonic wave detector that had been used by the military," says Yasushi Nishimori, PhD, Director and General Manager of the Research and Innovation Center at FURUNO. "In those days, it was a common view among academia that ultrasonic wave technology was only capable of determining the sea-bottom environment, and that it was not capable of detecting the location of swimming fish. One day in 1943, when Furuno was undertaking electric work on board a fishing vessel, a seasoned fisherman told him that bubbles floating on the surface of the sea are an indication of a good fishing spot. Greatly inspired by this tip, Furuno is said to have subsequently started developing the fish finder system. He probably thought that the ultrasonic wave

technology could be used to detect swimming fish because ultrasonic waves are capable of detecting reflected waves on the hard sea-bottom ground, as well as in the air."

After some trial and error, Kiyotaka succeeded in developing a technology that could determine the location of a school of fish by detecting the reflected waves in the air inside the air bladder of fish. He named this device the "Fish Finder," restructured his business to establish a new company together with his younger brother, Kiyokata, and launched comprehensive marketing activities for the fish finder. Initially the business was not successful because fishermen did not trust the system's performance or share the skills necessary to use the device widely.

In response, Kiyotaka sent Kiyokata to the Goto Islands in Nagasaki Prefecture as the chief fisherman working on a fishing vessel. Kiyokata succeeded in boosting the catch volume significantly by using the fish finder. Moreover, he was active when it came to sharing a range of feedback data from the fish finder with his fellow fishermen on board, and this helped the fish finder to rapidly gain popularity in the fishing industry. Subsequently, customer confidence in FURUNO rose, resulting in significant sales success.

"Initially, our fish finder was sold for 600,000 yen per unit, which was as expensive as a house in those days. Despite its high price, the company's technology attracted fishermen from all over the country. In fact, I heard that a number of customers in the fishing industry visited FURUNO (which was formerly based in Nagasaki City) with backpacks full of cash to

All photos: Courtesy of Furuno Electric Co., Ltd.



FURUNO's first Fish Finder featuring a data recorder (Model: F-261)

buy our fish finder," smiles Dr. Nishimori.

FURUNO has continued to make consistent efforts to improve its fish finder since it was

launched onto the market, announcing new products one after another, including radiotelephone equipment for fishing vessels and shipboard radars. In 1956, the company began exporting its products. Kiyotaka Furuno was a strong advocate of the hands-on approach to business, and this established the basis for the company's business approach of *genba-shugi*, which entails finding the seeds for new technologies and developing products based on customer needs by investigating things firsthand in the field. He often encouraged employees by saying, "Don't see yourself as a mechanical engineer; see yourself as a leading navigator."

"FURUNO has developed a range of unique marine electronics products, including the world's first tidal current meter and bird radars, as a result of our persistent efforts to meet the requests of customers in the fishing industry," says Dr. Nishimori.

Based on its sophisticated technology and expertise, FURUNO has expanded its product lines, including electronics equipment for large vessels and pleasure boats, medical equipment, disaster management systems, and intelligent transport systems. While FURUNO recognizes the importance of business diversification, the maritime industry is and will remain its core business area in the future.

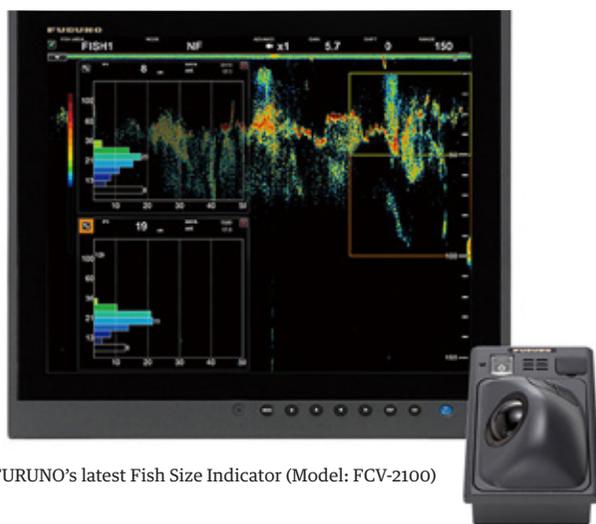
Dr. Nishimori says, "A top priority in our agenda for the future is the sustainable management of marine resources. Information regarding the types and volume of fish in terms of the total allowable catch currently relies on data gathered by research activities using research vessels. Those research data are used only as estimates because of the limited number of research vessels in operation, the sea

is relatively large. Given this situation, we have high expectations for an extensive set of data gathered by FURUNO's fish finders that are currently in operation all over the world."

Dr. Nishimori continues, "Analyzing different sets of data will make it possible for us to monitor and conserve marine resources more accurately. Recently, more countries around the world have been intensifying their efforts to sustain marine resources by setting strict fishing quotas in accordance with the size and species of fish.

"When we succeeded in commercializing the fish finder, our corporate mission was focused on contributing to society through activities for protecting food security. Going forward, global efforts involving Japan toward the appropriate control of marine resources will be seen as an important issue in our society," says Dr. Nishimori. "We take active steps to develop new types of fish finders to enable fishing operators around the world to have the ability of determining not only the size but also the species, such as herring and mackerel, as a social contribution."

FURUNO's technology has significantly changed the scope of the fishing industry, where it was usually necessary to rely on seasoned fishermen for their experience and intuition. The world is watching FURUNO as an innovative leader in protecting and developing marine resources for the future. 



FURUNO's latest Fish Size Indicator (Model: FCV-2100)