

Hokuriku Soy Sauce Brewing

— From Edo to Showa —

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In the following pages, we will explore soy sauce making in the three prefectures of the Hokuriku region of Japan – Ishikawa, Fukui and Toyama – from the 17th century onwards. Most noteworthy in the early stages are the history of Ono Soy Sauce, which flourished in Kanazawa, the capital of the Kaga Maeda Domain during the Edo Period, and the development of Fukui Soy Sauce by the Echizen Matsudaira Family. Modernization of the soy sauce brewing industry from the late 19th century contributed to increased production volumes nationwide, and the number of soy sauce breweries peaked in the period immediately after the Russo-Japanese War (1904-1905) before going into decline (p12, Fig. 1, 2). A trend for home-brewing spread nationwide in the early 20th century, and the rural villages in Hokuriku were no exception. Soy sauce brewers struggled for survival, investing all their efforts into improving taste and quality. It is often said that soy sauces in Kyushu and Hokuriku are sweet, or that soy sauces from coastal areas are sweet, but why? Manuals on soy sauce brewing from the early 20th century typically include details on the proportion of sweeteners, so we can assume that at this time it was not uncommon to add sweeteners to balance the intense saltiness, resulting in milder flavor. However, perhaps the biggest influence on the general perception of Hokuriku soy sauce as sweet was a post-war soy sauce exported from a Toyama port town that was especially sweet. I will now outline the history of Hokuriku soy sauce and the role it played in each era.

Kanazawa's Ono Soy Sauce – Feudal Japan and the Start of Soy Sauce Brewing

One especially well-known Hokuriku brand is Ono Soy Sauce, made in Ono Town, Kanazawa City. While it is often said that Naoeya Ihei acquired the necessary brewing skills in Kishu Yuasa (considered the birthplace of *koikuchi*, dark soy sauce in Japan) in Wakayama Prefecture by order of the Kaga Domain lord sometime between 1615 and 1623, there is no firm evidence, and others say the skill was introduced from the prominent soy sauce regions of Choshi or Noda, Chiba Prefecture. The peak of the Ono Soy Sauce industry was in the 1840s and 1850s, when as many as 60 breweries produced several million liters of soy sauce every year. Then in 1856, a number of documents were exchanged regarding

the delivery of Ono Soy Sauce by appointment to the residence of the Kaga Domain in Edo. *1) According to those records, the Ono Soy Sauce brewing industry was actually established in the early 19th century, and by around the 1850s had become one of the key soy sauce producing regions in Japan, alongside Owari and Mino for tamari soy sauce, Choshi, Noda, and Shodoshima Island for *koikuchi*, and Banshu-Tatsuno for *usukuchi*.

Why did Ono Soy Sauce prosper? In terms of natural conditions, wheat crops were thriving from the Ono area to the Noto Peninsula, and as well as plentiful soybean crops planted along the edge of rice paddies locally, soybeans were easily obtained from Hokkaido and Niigata via maritime transport to Ono Port. In addition, spring water could be found throughout the domain, and salt produced in Noto, a territory of the Kaga Maeda Domain, was always available. In economic terms, the industry was supported by the vast consumer population around Oyama Castle (present-day Kanazawa Castle), and makers also exported aggressively to regions as far away as Hokkaido. The soy sauce brewing industry had plentiful labor resources thanks to the shift of labor from Noto, further boosted in the mid-19th century by the transfer of shipowners and boatmen from Ono Port after it lost its maritime trading rights to neighboring Miyanokoshi Port (present-day Kanaiwa, Kanazawa City). With the opening of railways in the late 19th century, many jobs, especially those in the shipping industry, were lost. But in a story heard around the country, people found new work in the soy sauce brewing industry.

In a 1951 survey of Ono Soy Sauce *1), of the 36 breweries operating at the time, four were run by former shipping agents and their employees, seven by former shipowners and their boatmen, and 11 by former domestic servants. Most of the breweries were founded during the late 18th and early 19th centuries. The exodus of resources from other industries, lured by potential profits in the soy sauce industry, shows the trend of the times.

In the closing days of the Tokugawa shogunate (late 19th century), a number of other soy sauce brewing areas gained prominence with expanded production volumes in what is present-day Ishikawa Prefecture, especially Kurisaki, to Ono's north. Immediately after the Meiji Restoration, and the ensuing abolition of the feudal domain system (1871), the Ono Soy Sauce industry lost its guardian, and the industry was thrown into disarray by inconsistent government policy and the repeated introduction and repeal of soy sauce brewing taxes. This period of uncertainty in the late 19th century and first quarter of the 20th century saw many brewers both entering and exiting the soy sauce industry across the nation.

Generally, soy sauce in Hokuriku region is said to be sweet, but the picture is not clear on 19th century Ono Soy Sauce. *History of Ono Town* * 2) concludes that sugar



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was used to season soy sauce at the end of the Edo Period. It talks about the price of white sugar being much higher than in average years, and the prohibitive cost of using it to season soy sauce. Ono Soy Sauce Brewery Cooperative Association members worked together to reproduce a naturally brewed soy sauce according to the traditional method of adding rice koji to the moromi mash. The resulting soy sauce called “Ono Murasaki” had a dark color and could hardly be judged as sweet. From an assessment of the fermentation technology and the fact that rice koji would have decomposed into the mash, it can be assumed that no sweetness would remain. Despite domestic sugar production having already started in 18th century Japan, it was still considered a precious commodity. Soy sauce at the time measured in at around 18% salt content for preservation purposes, so it is more likely that sugar was added simply to counter the intense saltiness and achieve milder flavor, rather than to make sugary sweet soy sauce.

Fukui Soy Sauce – Brewing Industry Development During the Feudal Period

Fukui City is home to what is said to be Japan’s oldest soy sauce storehouse. It is said that founder Muroya Giemon started sake, soy sauce, miso, and koji making in 1573, and that fourth generation Muroya Jizaemon went independent, starting his own soy sauce business in 1689. Jizaemon is said to have first visited Kishu Yuasa to learn the well-established brewing methods of *koikuchi* soy sauce, allowing him to brew more efficiently at lower cost, which in turn led to the spread of soy sauce among the general population.

In the castle town of the Echizen Fukui Domain during the Edo Period, brewing storehouses lined Muroya Jizaemon’s extensive grounds, producing soy sauce and employing many artisans including wooden barrel makers. As artisans who entered as apprentices were given assistance to start their own businesses, soy sauce making consequently spread all over Fukui Prefecture. And since a bottle of soy sauce cost more than sake in the Edo Period, it was likely an honorable thing to return to one’s hometown with cutting edge skills and methods enabling the establishment of one’s own soy sauce brewery.

Jizaemon’s younger brother Souemon set up a new family branch in the Mikuni area of Fukui, and his son, also called Souemon, started a shipping agency and became known as the wealthy merchant Uchida Family. In feudal Japan, many wealthy merchants were born into castle towns and port towns throughout the country, including the three capital cities of Edo, Kyoto, and Osaka. Those with deep connections with the Fukui Domain included the Kanaya and Komaya families in the castle town of Fukui; the Uchida and Mikuni families in Fukui’s outer port of Mikuni; and the Kiya, Konoike, and Yajima families from outside the Domain *3). In 1858, the late Edo Period Lord Matsudaira Shungaku of Fukui Domain ordered Kimimasa Yuri to go to Nagasaki and purchase land to construct warehouses for the Echizen Domain. The goal was to gain special contracts for selling products such as raw silk and soy sauce to the Dutch East India Company based on Dejima and commence official trading. Wealthy merchants amassed enormous fortunes with their *Kitamae-bune* cargo vessels participating in

this big business of maritime trading, and the Uchida Family is said to have played a major part, engaging in the export of soy sauce. One soy

sauce brand stocked by the family at the time had the auspicious name of “Kiku-shoyu”, written with two different combinations of Chinese characters meaning chrysanthemum and longevity. It is said that the 1872 delegation of the Meiji Government to Europe, led by Foreign Minister Tomomi Iwakura and the above-mentioned Kimimasa Yuri, the Governor of Tokyo at that time, found “Kiku-shoyu” being sold in the Netherlands. Fukui Prefecture is divided into two cultural zones: the southern Reinan consisting of Tsuruga and Wakasa, and the northern Reihoku region. Being closer to Kansai, Reinan’s culture is said to resemble that region, and even the dialect is said to be close to that of Kyoto. On the other hand, Reihoku included the inland city of Echizen Ono and adjoined the territory of the Kaga Maeda Domain. Each had their own ports – Tsuruga in Reinan and Mikuni in Reihoku, both of which played important roles as ports of call for *Kitamae-bune* cargo vessels. Mikuni Port was an especially important base of distribution in Reihoku with its location at the mouth of the Kuzuryu River and its tributaries connecting to inland areas. Commodities arriving at Mikuni Port were shipped along the Kuzuryu River’s water channels into the Shikununo area of Fukui City and then transported by land routes further inland.

The domain’s castle town of Echizen Ono, known as the little Kyoto of Hokuriku, is located deep inland. Heavy snowfall in winter provides plentiful spring water. With the help of this comparatively soft water, the brewing industry prospered in the castle town. Even now, along with sake and vinegar breweries, five soy sauce brewers remain in the town. Of the two breweries still making naturally brewed soy sauce, one started as a barrel maker in the Edo Period, changing to soy sauce brewing in the 1870s after the Meiji Restoration. While the coopers lived comfortably off their business in the castle town, it is said they made the shift to soy sauce brewing because it was clearly a more profitable industry at the time.

In the late Edo Period, the Echizen Ono Domain opened a chain of shops called “Ono-ya” managed by the samurai class to sell local specialties. The first shop opened in Osaka during 1855-1860, expanding to over 30 branches at the peak, including in Hakodate and the Kanto area *4). In 1858, the newly completed “Ono-maru” cargo vessel owned by the domain left the ports of Mikuni and Tsuruga loaded



“Kiku-shoyu” signboards (Held by Mikuni Museum) (Photo provided by Muroji Shoyu)



Nikkorogashi



Echizen Oroshi Soba

with gold, silver, copper, miso and soy sauce for sale in Hokkaido, returning with products like herring and kelp, and securing enormous profits in the process. The chain shops survived the 1872 nationwide abolition of feudal domains, and it is said the business profits paid off a great deal of the debt accumulated by the domain. The Hakodate branch of Ono-ya was apparently especially profitable as a center of trade for sugar, salt, and fabrics from Kansai in addition to local Fukui specialties, and kelp, dried fish and other marine products from the northern parts of Japan, known as Ezo.

Today, antenna shops and showrooms selling regional specialties in the big cities are incredibly popular. It is said that just like today, people in the Edo Period enjoyed conversations about the specialties of each region, but just how different was the Fukui soy sauce to Kanto-style *koikuchi* soy sauce? In the early 19th century, in addition to Fukui, brewers in Chiba and Shodoshima Island produced soy sauce according to the same methods said to be derived from Yuasa. What regional differences emerged owing to varied climate, topography, water, and methods? It's fascinating to consider, but we are limited to guesswork.

I interviewed locals about dishes seasoned with soy sauce in Echizen Ono. Simmered dishes, they say, are slightly sweet, and some have light color while others are dark.

Nikkorogashi, a dish using the Echizen Ono specialty of taro simmered in soy sauce and sugar, represents the dark-colored dishes. The taro is richly infused with the flavors of soy sauce and dashi stock, and it is hard to stop eating as a side dish with dinner or with a drink of sake. It had a kind of nostalgic flavor and made me feel grateful for the existence of soy sauce.

Among one of the most famous local specialties nationwide is Echizen Soba buckwheat noodles, the birthplace of which is Takefu, part of present-day Echizen City. The wide cold noodles are enjoyed “bukkake” style, by pouring soy sauce-flavored soup stock over the noodles topped with grated daikon radish, shaved dried bonito, and chopped green onions. The color of the soup is actually bright and not all that dark. Compared to the intense soy sauce flavor of noodle soups in Kanto, soy sauce in this dish didn't seem to stand out too much, instead playing the perfect supporting role.

*1 Yoshimoto, M., 2007, *History of Ono Soy Sauce*, p.8

*2 *History of Ono Town, Kanazawa City*, held by Imai Katsuyoshi in Ono Town, pp.147-151

*3 Fukui City History Museum, 2006, Special Exhibition *Fukui Domain and Wealthy Merchants – The Merchants who Colored their Times*

*4 Sakata, T., 1977, *Study of “Ono-ya”, the Official Shop of the Domain*

The Transition of Soy Sauce – From Hishio to Clear Liquid –

Here I will follow the transition from *hishio*, soy sauce's oldest ancestor, to the clear liquid soy sauce of modern times. Present-day dark-colored *koikuchi* soy sauce penetrated the market in the 19th century thanks to mass production and widespread distribution out of Choshi and Noda in the Chiba region. Over time, the manufacturing methods and styles of soy sauce have changed dramatically, updated for efficiency to allow for ever larger production volumes.

Seasoning products known as *hishio* and *misho*, predecessors of miso, were introduced from Tang Dynasty China during the Heian Period over a thousand years ago. The earliest innovations entailed taking liquids called *tamari* or *kukishiru* from these products. The next stage was *miso-tamari*, a liquid by-product of miso production ladled out from the barrels. The focus then switched to liquid extraction as the primary objective, and this stage represents the birth of *tamari* soy sauce.

The next breakthrough came at the turn of the 17th century with the development of methods for *koikuchi* soy sauce production using soy sauce koji – made from a mixture of soybeans and wheat – which was then combined with large amounts of brine. Preparation of the highly liquid *moromi* mash made it possible to obtain the liquid extract more efficiently. In the early days, a bamboo basket was simply sunk into the wooden barrel of *moromi* to ladle out and extract the desired liquid through the weave of the bamboo. It is possible the soy sauce was somewhat cloudy and not stable in terms of quality. During the 17th and early 18th centuries, soy sauce from Kyoto and Osaka known as *kudari-shoyu* was highly valued by the citizens of Edo. It is thought that *kudari-shoyu* was a broad category including various types and brands of soy sauce such as Sakai *Tamari* of Osaka, *usukuchi* from Tatsuno, and *koikuchi* from Shodoshima Island and Yuasa. Compared to the high quality soy sauces from the west, those of Edo were thought to be inferior, in my view, owing to different pressing processes and technologies for extracting sediment.

According to one source *5) which explains the technical aspects of soy sauce's modern industrialization process, traditional *tamari* with total nitrogen close to 3.0% was in principal not heat-treated. However, it was discovered that the quality of *koikuchi*, which has only half the total nitrogen levels, could be improved in terms of flavor, color, transparency, and mold resistance by heating at an appropriate temperature for a specified time. Exact temperatures and times varied by region and era, and a process of trial and error was repeated time and again from the Edo Period through to the era of modern technology innovations in 20th century Japan.

The age-old method from Kishu Yuasa used large wooden barrels to prepare the *moromi* mash, later ladling out the liquid with a bamboo barrels. That liquid was aged in wooden barrels, heated, then aged again and filtered to get a clear, dark-colored soy sauce.

*6) Locals in the area told me such techniques solidified Yuasa's position as the birthplace of delicious soy sauce that did not spoil even after a long journey. We can surmise that these are the brewing technologies and techniques, including heat-treating, that 4th generation Muroya Jizaemon took back to Fukui after discovering them in Yuasa.

Around 1700, a man called Gihei Hamaguchi from Hiromura near Yuasa, started brewing and became a prominent figure in Choshi, as did the Kubo Family in Yuasa. Breweries in Yuasa and Gobo maintain traditional methods even today, using iron cauldron to heat the soy sauce over a wood-burning fire of red pine. According to an early 20th century record, this direct heating method was also popular in Chiba, but premium Noda soy sauce was heated in a small cauldron over a large cauldron water bath. *7) Though the methods differ by region, the technology for heating and fining soy sauce established the foundation for industrial mass production of *koikuchi* soy sauce.

*5 Yokotsuka, Y., 2004, *Japanese Soy Sauce – Research on Its Source and Modernization*, Life Research Press, pp. 138-149.

*6 Television Wakayama (ed.), 1976, *Walking on Kishu Road*, pp.146-148.

*7 Oguri, T., 2010, *Survey on Systematization of Soy Sauce Manufacturing Technology*, Soy Sauce Research and Technology, 36(5), pp.301-316.



Direct heating in iron cauldron (Mitsuboshi Shoyu, Gobo)

Kanazawa's Ono Soy Sauce from Meiji to Taisho

Next, I will look at the transition of Ono Soy Sauce in Kanazawa from the Meiji Period onwards. First, the establishment of a license tax and brewing tax in 1872 caused a dramatic drop in the number of soy sauce brewers in Ono from 30 to just ten in 1877. According to the *History of Ono Town*, an attempt by brewers to increase sales volumes by lowering quality and therefore cost further reduced the brewers' reputations. Because many of the brewers worked concurrently in other industries, such as shipping, they simply ceased brewing soy sauce. The number of soy sauce brewers, however, started increasing again after the turn of the century. This is because the shipping agents driven out of the distribution business by the expanded railway network moved into soy sauce brewing. The improved transportation network had a significant influence on the soy sauce brewing industry both in terms of employment and distribution.

Transportation developments impacted increased sales of Ono Soy Sauce in three phases. The first was in 1884, with the opening of Ono Shindo, a new road allowing distributors to use carts to transport many more barrels of soy sauce than had been possible previously, when workers went on foot with a shoulder pole balancing two 36-liter barrels each. This was followed in around 1920 by the introduction of bicycles with trailers, and even motor tricycles. The second major development came in 1923 with the extension of the Kanaiwa Electric Railway to Ono Port, enabling nearby breweries to send goods directly to Kanaiwa and on to Kanazawa Station, which was on the national railway network and connected to regions further afield, such as Hokuriku and Tohoku. Deliveries by train as far as Kanazawa were mostly carried out by women at this time. Some of the soy sauce was intended for the local market, and the rest

was transported to more distant locations, with small and medium-sized breweries mostly servicing the closer regions of Noto Peninsula and the other prefectures of Hokuriku, and larger manufacturers developing consumer markets in Tohoku and Hokkaido, showing clearly defined markets. The third key phase in transportation development was the advent of the automobile, and although they had become widespread in the 1920s and 1930s, poorly surfaced roads meant that transportation by this means did not really take off until after World War II. A major player in the sales of Ono Soy Sauce was a role called *shoyu ukeuri-sho*, which can be translated as "consigned soy sauce dealers". Most dealers were former apprentices consigned by each brewery to sell only its products, responsible both for retail sales in local markets as well as work as wholesalers to distant markets. It is said that the sales networks of these consigned soy sauce dealers were so strong that there were no soy sauce wholesalers in Kanazawa. In one sense, these dealers were reserves for the brewing industry, with many starting their own breweries once they had accumulated sufficient capital. Thus in Ono Town prior to World War II, breweries had established strong connections with their consigned dealers and through them with customers, too, allowing them to overcome the ensuing crisis in the soy sauce industry. These secure connections between manufacturers, dealers, and consumers are also thought to be the reason why most of the small and medium-sized breweries of Ono survived in the post-war period, developing through cooperatives when breweries in the rest of the nation underwent mergers.

Difficult Times for Small and Medium-sized Brewers, 1910s~1930s

Can we see any similarities with the soy sauce industry in Fukui and Toyama at that time? In the three decades from

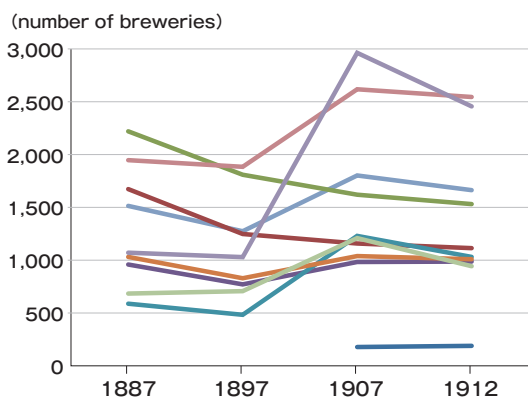


Figure 1. Number of soy sauce breweries

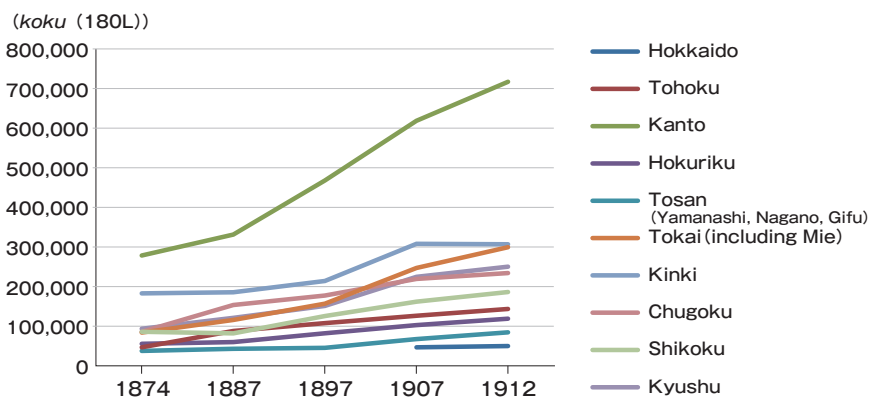


Figure 2. Brewing production volumes

1 koku
(traditional unit
of volume)=180L

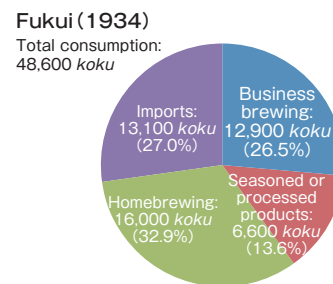
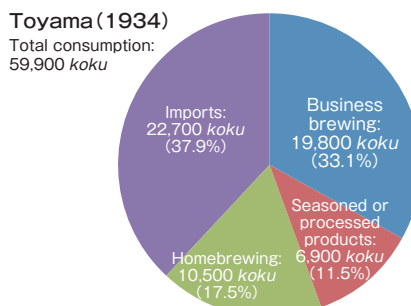
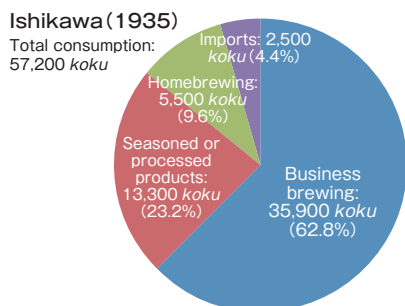


Figure 3. Soy sauce consumption by type in the three prefectures of Hokuriku, early Showa (1934-1935)

Maritime Transport Connecting Hokkaido and Hokuriku

—The Intersection of Kelp and Soy Sauce—

Before the development of railway and highway networks from the 1920s onwards, transportation of goods and movement of people was largely dependent on maritime and water transport. Many soy sauce and sake brewers had seaside or riverside locations allowing for easy transfer of raw materials and products. In this column, I look into maritime transport between Hokuriku and Hokkaido via *kitamae-bune* cargo vessels in the Edo Period and migration from the late 19th century, to better understand the exports of Hokuriku soy sauce during these times.

(1) Transport of Goods by Kitamae-bune Cargo Vessels – Mid-Edo Period through to Meiji

Some maritime transport already existed in the 14th century, but it was the opening of the Ezo (Hokkaido)–Osaka Sea Route in 1672 by Zuiken Kawamura, that completed the Nishimawari-koro westward marine circuit connecting Hakodate along the Japan Sea to Fukuoka and Osaka, then through the Kii Peninsula on to Edo (present-day Tokyo). *Kitamae-bune* cargo vessels loaded kombu kelp and herring at Hakodate, followed by rice, soy sauce and other goods at ports on the Japan Sea for transport along the westward marine route. Though an eastward marine route (Higashimawari-koro) connecting Hakodate via the Pacific Ocean through Miyagi to Edo opened around the same time, it was not as frequently used as the westward route because until the middle of the 18th century, the possible dangers on the route outweighed the potential profits. It was in this era that imports from Osaka and Kyoto, including soy sauce known as *kudari-shoyu*, were prized in Edo.

Figure 4 shows the sea route called Kombu Road. Besides ten large ports of call, boats stopped at many small ports concentrated especially in Niigata and Hokuriku. Apart from being unloaded in Fukui and Tsuruga for transport to Kyoto and Osaka, kombu was officially exported to China through Nagasaki. In the 19th century, kombu was smuggled to China by Satsuma Domain via Osaka, Kagoshima, and the Ryukyus on the kelp smuggling road in exchange for Chinese herbal medicines. It is said that Toyama Domain was well-connected with Satsuma Domain, and this illegal trade was the source of ingredients for Chinese medicines sold nationwide by the well-known medicine peddlers of Toyama.

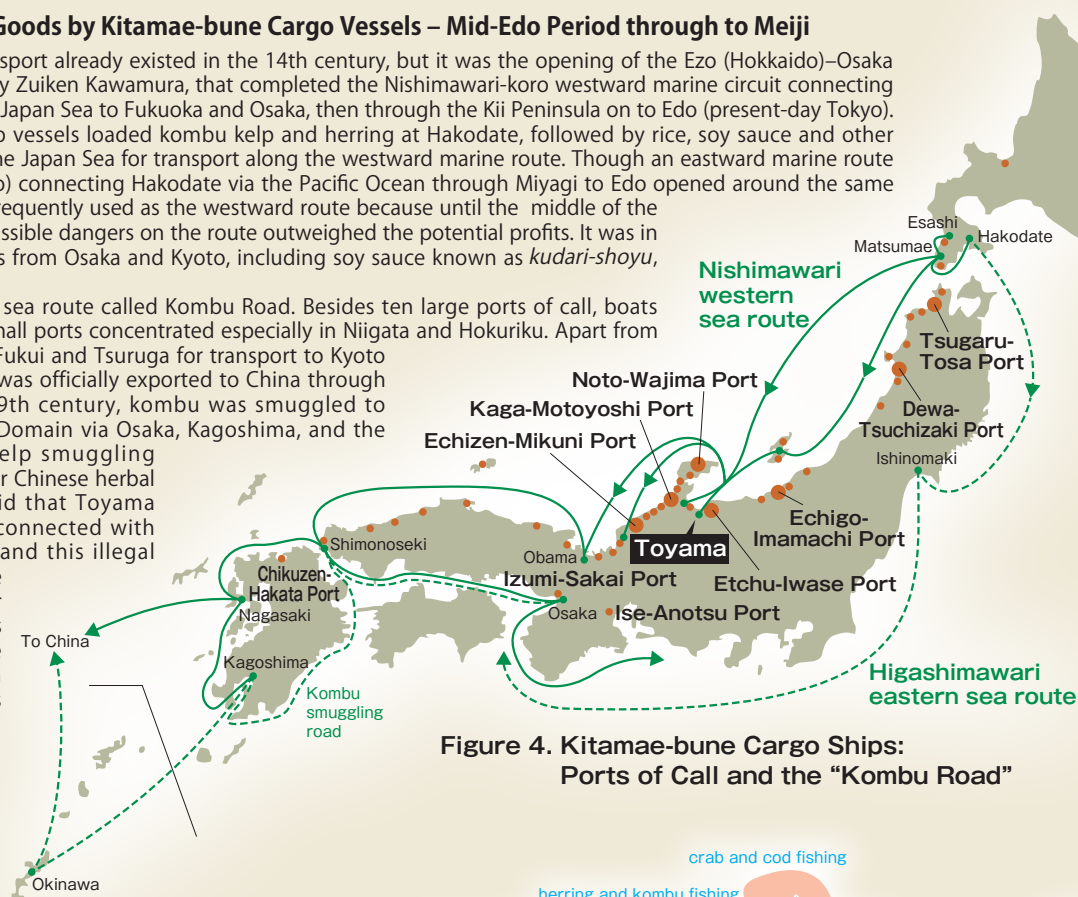


Figure 4. Kitamae-bune Cargo Ships: Ports of Call and the “Kombu Road”

(2) Movement of Workers and Migrants from Hokuriku and Niigata – From Meiji to Showa—

Hokkaido is well known for its kombu, but the type that can be harvested varies by location (Figure 5). With Hakodate as the base for *kitamae-bune* cargo vessels, and the Nemuro–Hakodate sea route established by the 1870s, the earliest varieties to be traded were those found in the Nemuro area, namely Ma-kombu and Hidaka-kombu. Toyama Prefecture had traded with Hokkaido via the *kitamae-bune* from the Edo Period, and many fishing vessels were dispatched to the northern regions from Toyama’s Ikuji district. From the late 1860s, many migrants from Hokuriku and Niigata headed to Hokkaido to fish in the northern seas, with a large proportion of those from Toyama. Central to the subsequent cultivation of fishery in eastern Hokkaido were settlers on Rishiri Island and Rebun Island, who were originally from Toyama and had made a fortune from herring and kelp fishing in the northern seas. The salmon and trout fishing industry prospered until the 1960s and contributed to the development of the Hokkaido soy sauce industry (pp.3-5), but also resulted in the import of Hokuriku soy sauces demanded by migrant workers and settlers who missed the taste of home.

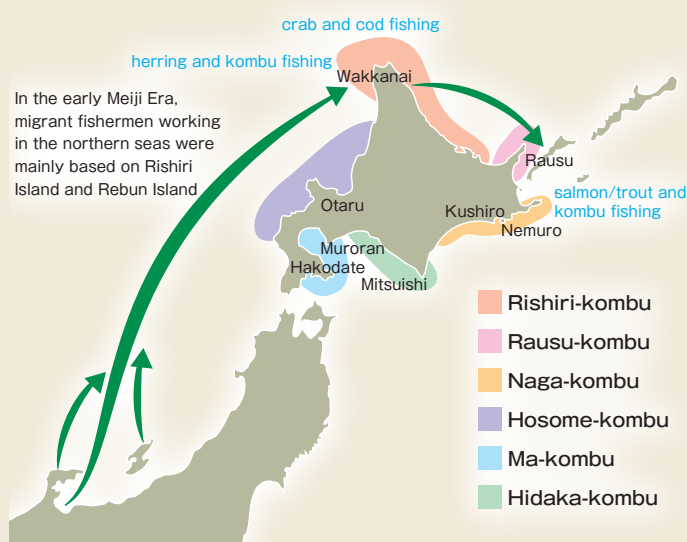


Figure 5. Hokkaido’s Kombu Producing Areas and the Flow of Workers and Migrants from Hokuriku and Niigata

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- 1) Shio, T., 1993, *Kombu o Hakonda Kitamae-bune* (The *Kitamae-bune* Cargo Ships that Transported Kombu), Hokkoku Shimbunsha, Ishikawa (p.79 and p.199).
- 2) Fukai, J., 2009, *Kinsei Nihonkai Kaiunshi no Kenkyu – Kitamae-bune to Nukini* (A Study of the History of Marine Transportation on the Japan Sea in Early Modern Times: *Kitamae-bune* Cargo Ships and Smuggling), Tokyodo Shuppan Co. Ltd., Tokyo. (pp 189–228).
- 3) Japan Kombu Association, Kombu-net, <http://www.kombu.or.jp/>, [Accessed: March 10, 2018].

Figures 4 and 5 were drawn after reference to the above materials.

the 1900s, small and medium-sized soy sauce brewers nationwide faced difficult times. While traditional brewing methods from the Edo Period had dominated the industry until around the 1890s, modernization of brewing technology advanced rapidly thereafter. And with the improvement of transportation networks and the opening of railways across the nation, the market was filled with products from large-scale soy sauce brewers who could maintain stable quality. Furthermore, the imposition of a soy sauce tax proved a large burden to small and medium enterprises.

During the Edo Period, soy sauce brewers were hit with a business license tax, just like sake brewers. The Meiji Government imposed an additional brewing tax in 1871, which was subsequently abolished in 1875. It was reinstated in 1885 to support increased military budget needs and while the actual rate varied, imposition of the tax continued until 1926. The abolishment of the soy sauce tax, however, was not enough to stabilize management for the small and medium-sized breweries.

In Fukui Prefecture in 1926, when the tax had been abolished, total commercial soy sauce production volumes were just under 4.5 million liters, but this fell to approximately 2.3 million liters ten years later (Fig. 3). The factors for this are thought to be the departure of several brewers each year and a consequent gradual decrease in average production volumes prompting an increase in home brewing *8). In addition, soy sauce was being imported from outside the prefecture, from places like Noda and Choshi in Chiba, as well as Ishikawa and Shiga Prefectures, targeting urban areas and towns. It was an era of competition between commercial brewing, home-brewing, and imported products.

In 1935 an association of soy sauce brewery cooperatives was established in Toyama Prefecture. Fifteen representatives from various areas of the prefecture gathered to discuss the establishment of the association, raising prices in response to the soaring prices of raw materials, and countermeasures for the home-brewing trend. This clearly shows the threat to the small and medium-sized breweries scattered across rural areas from rising raw materials prices and home-brewing.

*8 Machida, M., 1936, *Encyclopedia of Liquor and Soy Sauce of Japan*, Jokai Journal, pp 240-265.

Figures 1, 2 are based on information found in Amano, M. 1987, "A Study on the Soy Sauce Brewing Industry in the End of Edo and Meiji Era", *Research on the Regional History of Wakayama*, Professor Ando Seiichi Retirement Commemorative Organization, pp432-433
Figure 3 is based on *8)

Why Are Coastal Soy Sauces Sweet?

The phrase "sweet soy sauce" can indicate either a soy sauce to which some sweetener has been added purely to balance the intense saltiness and achieve milder flavor, or soy sauce which has truly sugary flavor. The word "sweet" is misleading, but there are clear differences in the levels of sweetness. Areas said to prefer the latter sugary type soy sauce include Kyushu, Hokuriku, and coastal areas.

I often hear that in areas with flourishing fishing industries, such as Noto (Ishikawa) and Joetsu (Niigata), the soy sauce is made sweeter than in the mountainous areas, because the fishermen constantly weathered by the salty sea breeze prefer sweeter flavor when eating fish. But I seldom hear such a story in Pacific Ocean

coastal areas such as Boso in Chiba, the Kii Peninsula in Wakayama, or Kochi Prefecture, nor in the Seto Inland Sea area. It seems limited to the coastal areas on the Japan Sea side.

I was interested in finding out who started saying that Hokuriku soy sauce is sweet? During daily use at home, locals would never notice their soy sauce as particularly sweet or salty. It must have been outsiders who noticed distinctly different flavor from what they were used to, and yearned for the flavor of home. I searched in the coastal areas of Toyama Prefecture and Hokkaido, strongly connected by active maritime trading, to find out where the sweet soy sauce of Hokuriku was transported to and subsequently consumed as the preferred local flavor.

From Ikuji to Hanasaki

In Kurobe City in the eastern part of Toyama Prefecture near Itoigawa River and close to the prefectural border with Niigata, there sits a coastal area called Ikuji. From the Edo Period, this area prospered with fishery, and was a thriving place of exchange with Ezo (northern Japan including Hokkaido) via the *Kitamae-bune* cargo vessels. The links for this intimate relationship can be seen in Toyama's long-standing status until recently as the largest consumer of kombu, especially Rausu kombu from Shiretoko in Hokkaido, an area said to have been cultivated mostly at the hands of migrants from Ikuji.

The history of the fishing industry connecting Ikuji to Hokkaido and the northern part of Japan can be divided into three main periods. The first is from the late 19th century through to World War II, when fishermen headed north to work around Rishiri Island and Rebun Island, and then proceeded to cultivate new fishing grounds around Nemuro, Kushiro and the islands off northeastern Hokkaido. The second is the decade after World War II with herring and cod fishing around Rishiri Island. And the third is the period from the 1950s to early 1960s, with migrant workers engaging in salmon and trout fishing based in Hanasaki, Nemuro. What the research revealed is that the flavor of soy sauce made around Ikuji seems to have spread especially in the late 1940s through to the early 1960s, when the migration of fishermen into the northern parts of Japan was at its peak.

A miso and soy sauce manufacturer in Kurobe City, Toyama, has been managed by daughters and daughters-in-law for generations. I spoke with one president about the story of her mother, who will turn 90 this year. Born in 1929 in the fishing town of Ikuji, she grew up every day eating a whole *fukuragi* fish, the local word for young yellowtail. Every day, the main dish was sashimi of the fish and she could not eat it all without sweet seasoning, so she poured the sweet soy sauce into her bowl until the fish slices were basically swimming. It is hard to know just how sweet it was, but it does seem clear that some kind of sweetener was added to counter the saltiness of the naturally fermented soy sauce.

Shortly after World War II, an earlier president took a liking to the mother of the woman I interviewed, and she married the president's son. Aiming to make a distinctively new product, she developed a "very sweet soy sauce" by adding more raw sugar and glucose syrup to the familiar sweet soy sauce from her childhood. She contributed not only to manufacturing a new brand but

also succeeded in developing new sales routes because the owners of fishing vessels in the port town of her birthplace, Ikuji, were mostly relatives, and it was right at the time when there was a rapid increase in migration of fishermen eastern Hokkaido, in particular to Hanasaki in Nemuro. In 1949, the number of Ikuji fishermen in Hanasaki was just 62, increasing to 235 in 1953, and then a record 245 in 1959 *9), growing in line with the salmon and trout fishing industry based in Nemuro's Hanasaki and Kushiro, which began thriving around 1952.

After a disaster caused by a typhoon passing offshore Eastern Hokkaido in 1954, work to make larger and more modernized fishing boats further developed fishery industries around Hokkaido until the 1976 imposition of a 200-nautical mile exclusive economic zone by USA and the Soviet Union caused it to go into decline. During the approximately 20 years prior, many fishermen from Ikuji migrated to Hokkaido. Large volumes of the sweet soy sauce, hand-pressed and seasoned to sweeten by the mother ex-president, were loaded onto vessels headed for Hokkaido from Ikuji. The sweet soy sauce clearly sold well, as it is estimated that no less than 900 liters of the product was loaded onto each vessel in fleets with enormous numbers of vessels. Aboard the vessels on the

northern sea, the sweet soy sauce offered a taste of home, and in the places it was unloaded, including Nemuro, the islands of Habomai with its kombu fishing industry, and Kushiro, the soy sauce must have satiated the yearning of the settlers from Ikuji for that nostalgic flavor. The popularity of the sweet soy sauce spread from Hokkaido into Iwate and Miyagi Prefectures in the northern Honshu region of Tohoku, where customers today on the coast still seek the sweet flavor from days gone by.

The locals' love of this sweet soy sauce earned it a strong reputation and many nearby soy sauce makers followed in the brewery's footsteps. The timing coincided with a nationwide trend for mixed soy sauces made using sweeteners and new technology making it possible to simply change sweetness levels. It seems that links between fishermen contributed to the expansion of sweet soy sauce around the coastal areas from the Japan Sea to Hokkaido and down the Tohoku coast, triggering the story that soy sauce in coastal areas is sweet.

*9 Yokoyama, T., Hashizume, K., et al, 2013, *Transition of Fishing Industry in Ikuji District, Kurobe City, and an Attempt to Revitalize the Fishing Village Area Utilizing Regional Resources*, Tsukuba Studies in Human Geography 33, pp145-173.

Cultural Zone of Tamari and Shiro Soy Sauces Around the Bays of Ise and Mikawa (Aichi, Gifu and Mie Prefectures)

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Introduction

While tamari soy sauce and *shiro* soy sauce may occupy just 2% and less than 1%, respectively, of total nationwide soy sauce production volumes, these soy sauces are used frequently throughout Aichi, Gifu and Mie Prefectures. In this article, I explore how such regional characteristics

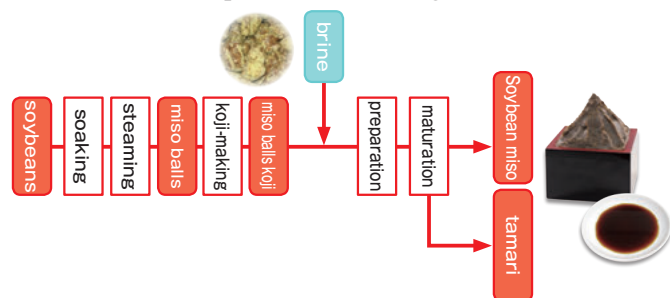


Figure 1. Soybean Miso and Tamari Soy Sauce Preparation in the Early Meiji Period



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came about, examining factors of climate, topography, politics, economics, and distribution networks. I also detail how such sauces are used by people in the region today.

1. The Climate That Created Soybean Miso Culture

Tamari soy sauce results from the process of making soybean miso (soybean paste made only with salt and soybeans) (Fig. 1) Soybean miso has a long history and can be found in a 10th century dictionary called *Wamyoruijushou* described as Shiga-misho and Hida-misho *1). (*1 Hishu-shi, an Edo Period text from Takayama City of the Hida region of present-day Gifu, describes how to make *misho* – the prototype for Soybean miso.)

The use of rice koji in miso production spread from around the 9th century, but the climate and topography of central Japan lent itself to soybean miso. Compared to Choshi, Chiba Prefecture, a key producer of *koikuchi* soy sauce, Nagoya City in Aichi Prefecture is hotter and more humid in summer, causing fermentation to progress too



Miso-stewed udon noodles



Soup and miso dengaku

Photo 1. Dishes made with soybean miso