

# OISHII

THE HISTORY OF SUSHI

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REAKTION BOOKS

## FIVE THE GLOBAL SPREAD OF SUSHI

Today, sushi is a global food, both in how it is consumed and how it is sourced. According to Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF), as of 2017, there were some 117,500 Japanese restaurants globally, up from 89,000 in 2015 and 24,000 in 2006. Most of these (69,300) were in Asia outside Japan, which as of 2016 had 20,135 sushi shops.<sup>1</sup> By region, North America has 25,300 Japanese restaurants, Western Europe 12,200 and South America 4,600; Russia and Australia each have 2,400, and there are 950 Japanese restaurants in the Middle East and 350 in Africa.<sup>2</sup> Japanese restaurants have existed in China since before the fall of the Qing dynasty (1644–1912), and the first Japanese-owned restaurant in America dates to 1885.<sup>3</sup>

When Japan opened more freely for international trade after the mid-nineteenth century, travellers to Japan encountered sushi, along with other Japanese foods, but the global sushi boom occurred after the Second World War, beginning in the United States in the late 1960s and spreading internationally in the 1980s and '90s. Initially, non-Japanese had to have sushi defined for them. A short article that ran in the *Los Angeles Times*

in 1957 told travellers to Japan to expect something called sushi on their flight: 'Northwest Orient Airlines advises tourists that sushi is a rice sandwich that is popular with natives and visitors.'<sup>4</sup> As sushi spread, it evolved in meaning outside Japan from a food once deemed unpalatable – if not dangerous – to one that was chic, healthy and now popular to the point of being mundane.

However, the global spread of sushi has increased demands on fish populations. Fish do not respect state boundaries, and they are unevenly protected by international laws. Restrictions can be placed on bluefin tuna at one side of the Atlantic while the worst industrial fishing practices are allowed to continue on the other.<sup>5</sup>

The degree to which sushi is healthy or dangerous has also become a point of global debate. When the Fukushima nuclear disaster occurred in March 2011, observers on the other side of the Pacific wondered if their sushi was safe to eat. This chapter examines the global spread of sushi, from restaurants, to fishing, to international health concerns related to fishing and to sushi consumption. However, the fate of conveyor-belt sushi operations around the world in the wake of the spread of the novel coronavirus (Covid-19) remains uncertain at the time of the writing of this book.

## SUSHI COMES TO AMERICA

Charles Kame (also known as Hamada Hamanojo) opened the first Japanese-owned restaurant in North America in Los Angeles in 1885.<sup>6</sup> The Kame Restaurant, located on East First Street in an area of the city that would come to be known as Little Tokyo, served Western food, as did two other Japanese-owned restaurants that operated near the Little Tokyo area by 1892. The first Japanese-owned restaurant to serve Japanese

food opened in San Francisco in 1887; it was called the Yamato. Six years later, greater Los Angeles had its first restaurant that served Japanese food, the Mihatei, which opened next to a public bath in Chinatown in 1893. It was followed by several others in that section of the city.<sup>7</sup>

There are some claims that sushi was served in a restaurant in Little Tokyo as early as 1906, but the quintessential Japanese restaurant food in the United States (for white people at least) through to the 1960s was sukiyaki, beef cooked in a pot with vegetables.<sup>8</sup> One guidebook to Japanese food published in 1946 dubbed sukiyaki 'the national dish of Japan similar to roast beef of England', while at the same time warning non-Japanese readers away from dishes such as sashimi and sushi that would 'repel and disgust them'.<sup>9</sup> Japanese restaurateurs also operated Chinese 'chop suey' restaurants, and there were as many as sixty of these Japanese-owned businesses in Los Angeles by 1927, serving inexpensive fare to a Caucasian clientele.<sup>10</sup>

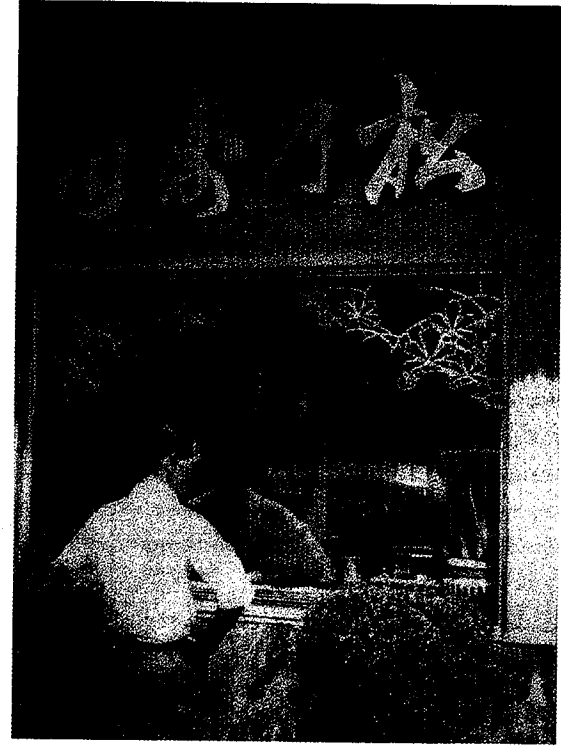
Despite the Gentlemen's Agreement of 1907 prohibiting adult male Japanese from emigrating to the United States, according to one report, by 1909 there were 149 Japanese-owned restaurants in the Western United States that served American food, and 232 more that specialized in Japanese cooking. The 1915 Los Angeles telephone directory, among other records, shows 715 Japanese-owned businesses that included Western and Japanese restaurants, miso manufacturers, sake brewers, rice sellers, vegetable stands and butcher's shops, making it possible to buy locally produced fishcake (*kamaboko*), Japanese noodles, *nattō*, *senbei* and soy sauce in Los Angeles.<sup>11</sup> The initial burst in energy was derailed by the 1924 Immigration Act, which ended all Asian emigration to the U.S., including Japanese. The Second World War not only brought the closure of Japanese restaurants on the West Coast, but saw the forced removal and internment

of U.S. citizens of Japanese descent from California and other states in 1942.

One Little Tokyo restaurant that survived the war may have also been the first to sell sushi to Japanese and white customers. Japanese émigré Kawasaki Yasujirō (1892–1978) opened Matsunosushi (also Matsu no Sushi) on 111 San Pedro Street in 1921. A reporter for the *Shin Sekai*, a Japanese newspaper in San Francisco, described the fare, mentioning the sushi in passing and commenting on the inexpensively priced rice bowls (*donburi*) costing 25 cents that drew white college students.<sup>12</sup> In 1933 Kawasaki moved his restaurant to 313 East First Street. An announcement in the Los Angeles Japanese newspaper the *Rafu Shimpō* stated that the new venue would ‘cater to the Japanese and a few American sushi-eaters.’<sup>13</sup> Kawasaki registered the new building in the names of his children, since foreign-born Japanese could not own property.<sup>14</sup> In 1937 photographer Herman Schultheis captured an image of a white man peering into the art deco window of Matsunosushi. A writer for the *Rafu Shimpō* advised that the owner of the establishment label the *nigirizushi* visible to customers through the window:

If I were to single out a distinctively artistic window in all Li'l Tokio, I would not hesitate in naming that of the Matsu no Sushi. It is on East First near San Pedro. I have seen from time to time American passers-by pausing in front of that window to see and admire the exotic beauties displayed by it. I only wish that they added in a harmonious way a ‘foot-note’ in English explaining what it is all about. SUSHI – ‘Japanese sandwiches’ – 25 cents. Or something like that.

It also makes me think how wonderful it might be if passers-by could stand in front of the window and see how Sushi are actually made.<sup>15</sup>



Herman J. Schultheis, photograph of Matsunosushi Restaurant, 1937.

Matsunosushi reopened in 1947 and the store operated until the death of Yasujirō in 1978, when mention of the establishment disappeared from the *Rafu Shimpō*.

After the Second World War, only 56 restaurants owned by Japanese remained in Los Angeles in 1954. Of these, sixteen served Japanese food, nine sold Chinese and 31 were Western-style eateries.<sup>16</sup> New York’s three Japanese restaurants, one of which, the *Miyako*, opened in 1910, were also closed because of the Second World War.<sup>17</sup> Legal immigration from Japan did not

resume until the passing of the Immigration Act of 1965, which lifted the ban on Japanese as well as other Asians and Southern and Eastern Europeans from becoming U.S. citizens.

In the post-war heyday of sukiyaki in the United States, Honolulu was the only locale where sushi could be found regularly in restaurants in the early to mid-1950s. *Japanese Foods (Tested Recipes)*, a cookbook published in 1956 by the Hui Manaolana, a Japanese residents' organization in Honolulu, not only contained recipes for nigirizushi and makizushi, but displayed advertisements for several restaurants selling sushi. The Wisteria Restaurant at the corner of King and Piikoi Streets announced 'Tokyo Sushi' as its speciality and also offered 'excellent American Style food'. Another restaurant located on 1309 Kalakaua Avenue billed itself as a 'Sushi Center' and claimed its speciality was sushi. Finally, Tsujita Tempura on Beretania Street sold takeaway sushi.<sup>18</sup>

The 1960s saw the first hints that sushi was catching on in the mainland United States, according to American newspapers. Noted food critic Craig Claiborne (1920–2000) observed in 1963 that sushi was too 'far out' for some New York diners, who preferred teriyaki. Three years later, in a column of restaurant reviews, Claiborne described the dramatic proliferation of Japanese restaurants in Manhattan and his characterization of sushi had changed completely. Claiborne identified Kamehachi as a sushi restaurant located on 41 West 46th Street and the older, 'grande luxe' Nippon on 145 East 52nd Street, which had its own sushi bar and served the best 'raw fish and vinegared rice' anywhere in the city. New Yorkers 'for whom "Chopsticks" was once a childish piano exercise' had not only become accustomed to Japanese food, but 'some of them dine on the raw fish dishes, sushi and sashimi, with a gusto once reserved for corn flakes.'<sup>19</sup> The Nippon opened in 1963, two years after New York's

### JAPANESE FOODS (TESTED RECIPES)

The cookbook *Japanese Foods (Tested Recipes)*, published in 1956 by the Hui Manaolana, a Japanese residents' organization in Honolulu, contains directions for making sushi rice and six different recipes for sushi. For sushi rice, the authors suggest boiling the rice with konbu for the first three minutes of cooking time, a typical technique to make the rice savoury thanks to the naturally occurring MSG in the konbu. Further flavouring of the rice comes from the addition of a mixture of ½ cup (80 ml) vinegar, five tablespoons of sugar, one tablespoon of salt and two teaspoons of 'gourmet powder'. The powder is artificial MSG, specified as the Japanese product Ajinomoto, used in many of the recipes and featured in a full-page advertisement in the cookbook. The ingredients are heated in a saucepan until the sugar and salt dissolve, then added to the hot rice, which is cooled by fanning it with a fan.

The recipe for Maguro Nigiri Sushi, credited to Mrs Tooka Ida, relies on the sushi rice recipe. It also uses tuna (called *shibi* in both Hawai'i and in Japan) and mustard or horseradish instead of wasabi.

#### MAGURO NIGIRI SUSHI

Servings: 6–8

1½ lb shibi (tuna)

1 teaspoon mustard paste or grated horseradish

Prepare 4 cups rice for sushi.

While the rice is cooling, cut fish into slices 1½" × 2" × ¼" [4 cm × 5 cm × 3 mm], a little larger than for sashimi. Make small rice balls shaped like an egg, slightly flattened, and press a slice of

shibi on top. Dab a little mustard or horseradish between the rice and fish.

Brush taré sauce on the fish with pastry brush.

Taré sauce:

¾ cup shoyu [soy sauce], 1 tablespoon sake, 1 teaspoon sugar.

Cook over slow [sic] heat until thickened.

Variations:

Use boiled shrimp opened flat and soaked in vinegar.<sup>20</sup>

first post-war Japanese restaurant Kabuki. Kitcho, a branch of the famous restaurant by the same name in Kyoto, debuted in 1964, the same year Benihana opened in New York. Like Benihana, Kamehachi, which opened in 1965 in New York City, was one of a chain of fifteen Japanese restaurants in the USA.<sup>21</sup> Kamehachi also opened a branch in Chicago in 1967 operated by nisei Marion Konishi, niece of the restaurant's founder.<sup>22</sup> It was originally located on 1617 North Wells Street across the street from Chicago's famous improvisation theatre The Second City, and actor John Belushi was said to have become a regular customer at Kamehachi. In the 1970s he would frequently appear on Saturday Night Live as a samurai in different occupations, including as a chef.<sup>23</sup>

Sushi restaurants were starting to open in California in the same period in the 1960s, most of which were operated by second-generation Japanese owners without professional training as chefs. In Los Angeles' Little Tokyo's Kawafuku restaurant was the first place to have a sushi counter with a glass case in 1965 (or 1962, according to some scholars).<sup>24</sup> It was joined by two other sushi shops in the 1960s, although other eateries sold sushi too.



## — MENU —

DINNER—3:00 PM to 10:00 PM

Choice of MISO SHIRU (soy bean soup) or SHIMONO (clear soup)	
RICE - PICKLES - TEA and DESSERT with all DINNERS	
For something new and different, try SUSHI for appetizer	1.00
1. TEI SHOKU DINNER (Table D'Hotel)	1.70
Complete Japanese dinner	
2. SALSIBA DINNER	1.25
Plat of fresh raw fish and Shitashi (fried spinach)	
3. TEMPURA DINNER	1.25
Fried butterfly shrimps and tempura (fried)	
4. YAKI TONI DINNER	1.60
Chicken broiled in tare sauce and fresh vegetable salad	
5. YAKI SUYA DINNER	1.60
Pork broiled in tare sauce and fresh vegetable salad	
6. YAKI HIRU DINNER	1.75
Beef broiled in tare sauce and fresh vegetable salad	
7. UNAGI DINNER	1.60
Eel broiled in tare sauce and tempura (fried)	
Our Specialty	
SUSHI DINNER #1	1.75
(Beef, pork or chicken)	
SUSHI DINNER #2	1.75
(Beef, pork or chicken) & Tempura (fried butterfly shrimps)	
SUSHI DINNER #3	2.50
Tempura (fried butterfly shrimps) & Tempura (sea food salad)	
8. SUSHI DINNER	1.25
Yogurt (rice) with shrimp, crab, clam and sea weed salad	
9. TEN DON DINNER	1.20
Fried butterfly shrimps on rice in large covered bowl	
10. KATSU DONBURI DINNER	1.20
Pork cutlets and egg on rice in large covered bowl	
11. OYAKO DONBURI DINNER	1.20
Chicken and egg on rice in large covered bowl	
12. UNAGI DONBURI DINNER	1.65
Broiled eel on rice in large covered bowl	

MINIMUM—\$1.00 PER PERSON

## A LA CARTE

FISHONO OR MISO SHIRU	.20	YAKI MOTO	.75
(Clear soup or soy bean soup)		(Cold soy bean soup)	
SALADA	.40	TEMPURA	.75
(Plate of fresh raw fish)		(Cold butterfly shrimps)	
SHIMONO	.40	SUSHI	1.00
(Clear soup)		(Tempura (one each with shrimp, pork, clam and sea weed etc))	
TEI-YAKI	.55	SUJI	1.50
(Broiled fish in tare sauce)		(On table with beer)	
SHITASHI	.35	DONKAI (fried)	.15
(Fried spinach)		TEISHIMONO (fried)	.25
YAKI MOTO	.40	YAKI MOTO	1.25
(Broiled soy bean soup)		(Beef broiled in tare sauce)	
DONKAI	.40	YAKI SUYA	1.65
(Fried spinach in tare sauce)		(Pork broiled in tare sauce)	
YAKI HIRU	.40	YAKI TONI	1.60
(Chicken broiled in tare sauce)		(Chicken broiled in tare sauce)	
YAKI SUYA	.40	YAKI MOTO	1.25
(Pork broiled in tare sauce)		(Beef broiled in tare sauce)	
YAKI MOTO	.40	YAKI MOTO	1.25
(Beef broiled in tare sauce)		ICE CREAM	.50
YAKI MOTO	.40	FRUITS OF SEASON	.25
(Beef broiled in tare sauce)			
DONBURI A LA CARTE		HYAMEN DONBURI	
YOSHIMONO (clear soup)	1.25	(Chicken, DA and mixed vegetables soup)	.25
(Chicken, DA and mixed vegetables soup)		(Cold soy bean soup)	
OKAJI USON	.75	SAKI SOBA	.80
(Fried Japanese vegetable on noodles)		(Cold wheat noodles with sauce)	
OTAKO USON	.45	OTAKO DONBURI	.85
(Shrimp and egg on noodles)		(Chicken and egg on rice)	
TEMPURA USON	.45	TEN DON	.85
(Fried butterfly shrimps on noodles)		(Fried butterfly shrimps on rice)	
TEMPURA DON	.45	KATSU DONBURI	.95
(Fried butterfly shrimps on rice)		(Pork cutlets and egg on rice)	
YAKI MOTO	.40	UNAGI DONBURI	1.50
(Beef broiled in tare sauce)		(Broiled eel on rice)	
YAKI MOTO	.40	WINE—BEER—SOFT DRINKS	
(Beef broiled in tare sauce)		JAPANESE SAKE (Imported)	Beats 3.00
YAKI MOTO	.40	JAPANESE SAKE (Domestic)	.85
(Beef broiled in tare sauce)		SHIRAZ	.40
YAKI MOTO	.40	SAUTERNE	.40
(Beef broiled in tare sauce)		CHAMPAGNE	.40
YAKI MOTO	.40	BOURGOGNE	.35
(Beef broiled in tare sauce)		COCA COLA	.15
YAKI MOTO	.40	LEMON UP	.15
(Beef broiled in tare sauce)			

Menu cover and interior from Tsuruya Restaurant, 1957, based at 239 West 105th Street in New York.

Until 1970 most of Los Angeles's Japanese restaurants were in Little Tokyo, but that began to change as restaurateurs opened establishments in other neighbourhoods and the number of Japanese restaurants went from 34 in 1969 to 148 by 1979.<sup>25</sup> The dominant explanation for the initial growth of Japanese restaurants in the United States in the 1960s is that they were built to cater to Japanese businessmen and their families working and living abroad. However, the proliferation of Japanese restaurants in the 1970s was thanks to the fact that they had found a larger market.

Matsumoto Hirotaka, a Japanese restaurateur who began work in the trade in New York in 1970, offered several reasons why sushi began to catch on in the U.S. with non-Japanese diners. He observed that initially the only non-Japanese who ventured into Japanese restaurants were people who had lived and travelled in Japan or were 'hippies', part of the 1960s counter-culture. However, the influx of Japanese consumer goods from the 1970s and increased interaction with Japanese living in the United States introduced Americans to Japanese food, but it took time for Americans to shift their preferences from sukiyaki to sushi. According to Matsumoto, most Americans thought all fish tasted the same because they cooked them all the same way, either in butter or by frying. Sushi, in contrast, provided a way to understand how different varieties of fish tasted. Americans also liked the performance aspects of sushi prepared in front of them at a sushi bar, where people could sample a little sushi without having to order a full meal, in contrast to a French restaurant, where one could never dine alone lest one be seated near the bathroom. A final reason Matsumoto and many others cite for the popularity of sushi was that it came to be considered a health food after the United States Senate Select Committee on Nutrition and Human Needs published the McGovern

Report in 1977. Named for the committee's chairman, Senator George McGovern, the report suggested that Americans shift away from fatty and processed foods. In contrast to beef, sushi was a health food.<sup>26</sup>

Sushi was presented in the American press as both the representative food of Japan and the country's most exotic and elevated culinary achievement, which further enhanced its status. Reporters followed the lead of Craig Claiborne, who wrote in 1968, 'although it has never been declared as such, the dish called sushi may be the national dish of Japan.' Claiborne made this declaration even as he had to define sushi for his readers: 'sushi is, of course, an assortment of small morsels of the freshest raw fish and sea food pressed onto cold rice lightly seasoned with vinegar.'<sup>27</sup> Seven years later, Claiborne was still introducing sushi to apprehensive readers, hinting that those who had yet to try it were somehow lacking in their understanding of cuisine. He wrote in 1975 in a column carried both in the *New York Times* and the *Chicago Tribune*, 'to the uninitiated palate, sushi – raw fish served on rice – is one of the gastronomic curiosities of the world . . . To those who enjoy sushi, however, it is one of the gastronomic wonders, in or out of its native Japan.'<sup>28</sup> The year before Claiborne wrote that article, there were more than 150 Japanese restaurants in New York City.<sup>29</sup>

The claim that sushi was the 'national dish of Japan' was significant in light of Japan's growing economic presence in the 1970s. Japan may have ended its double-digit growth rate in the 1970s and suffered a brief recession in 1974, but Japanese exports to the United States increased steadily to the point that by the mid-1980s, they were double American exports to Japan. Prompted by lobbyists from industries and labour unions, the U.S. negotiated limits on Japanese exports in the 1970s, including steel, colour televisions and cars, in 1981.<sup>30</sup> At the same time

American consumers were turning to Japanese goods, they also embraced Japanese food. 'Part of the strength of Japanese cuisine in American restaurants', writes food scholar Krishnendu Ray, 'is related to the rise of Japan as a major economic and cultural power which has made its food an exotic "foreign" commodity, a designer commodity if you will, somewhat akin to the role once played by French food in the American imagination'.<sup>31</sup> Reporter Barry Hillenbrand titled his 1980 article about sushi for the *Chicago Tribune* 'From the Folks Who Brought You Sony Comes a Fishy Ritual in the Raw'. Hillenbrand equated the rise of sushi to the greater economic power of Japan, writing:

As platoons of white-shirted Japanese businessmen have gone abroad to make the world safe for Japan, Inc., they have established what amounts to field kitchens serving sushi in Los Angeles, New York, and to a limited extent, Chicago.<sup>32</sup>

Sushi may have been described as a Japanese national dish in American newspapers, but food writers in the 1970s explained that Americans needed initiation into how to eat it. Jane Salzfass Freiman, writing for the *Chicago Tribune*, described sushi as 'Japan's fast food', but one that required specific cultural knowledge for Americans to order. Not only do sushi chefs 'have barely a nodding acquaintance with the English language', she expounded, 'mastering the art of ordering and eating sushi is a delightful introduction to the complex cuisine of Japan and a fascinating odyssey through a strange and totally Japanese world of sights, smells, taste, language, and ritual.' Amid all of her efforts to exoticize sushi, Freiman provided guidance on what to order and explained the difference between nigirizushi and makizushi. She then introduced six Chicago restaurants where diners could try sushi.<sup>33</sup>

After 1980, the year James Clavell's 1975 novel *Shōgun* became a television mini-series watched by more than 32 per cent of American households, sushi no longer needed to be defined for readers of America's major newspapers, but it still remained a food of those in the know. An article that year by Suzanne Hamlin that ran in the *Chicago Tribune* and *New York Daily News* stated that sushi 'attracts the curious, the intellectual (pure food for pure thought), the dieter, the traveller, the health nut, and the connoisseur. In other words, most people.' Hamlin counted thirty sushi bars in New York City, but at the same time noted that sushi had become even more prominent on the West Coast.

In California, where sushi is now as rooted into the culture as surfing, it's called 'doing sushi', and like digital watches, calculators and computers, it looks like an import that is here to stay. And it's catching on in virtually all other urban areas.<sup>34</sup>

In Los Angeles, at least by the early 1980s, sushi had become pervasive in terms of restaurants and in the culture of dining out.<sup>35</sup> Today, California has more Japanese restaurants than any other state, according to a 2018 Japan External Trade Organization (JETRO) survey. Of the 14,129 restaurants that serve mainly Japanese food in the USA, the top states were California (4,468), New York (1,892), Florida (1,266), Washington (898) and Texas (802). My home state of Kansas was in 33rd place with 74 restaurants, while South Dakota was at the bottom with only six.<sup>36</sup>

The value of the cultural capital of knowledge of sushi is visible in the 1985 John Hughes film *The Breakfast Club*, where Judd Nelson's character John Bender has to ask Claire Standish, played by Molly Ringwald, what she is eating for lunch. When she replies sushi, he needs it defined for him, highlighting the difference in social status and sophistication between the effete



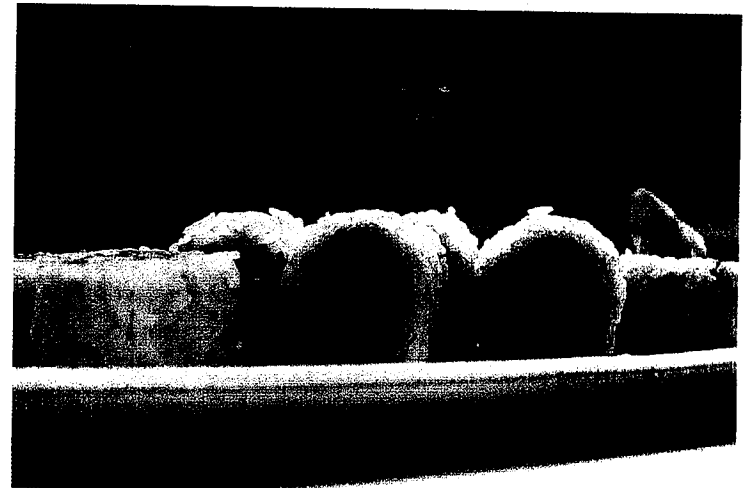
Roger Shimomura, *Dinner Conversation with Nancy*, 1983.

Claire and the rough bully Bender, who did not even bring his lunch. To speak for a moment about my own life, I was a high-school student at the time that *The Breakfast Club* came out, and it was the spark that provoked my friends and me to try sushi, because all of us wanted to know what the rich and popular kids did. I already knew the 1981 song 'Sushi Girl' by the San Francisco-based band The Tubes, a song with lyrics that slipped between the food sushi and a girl named Suki.

The Tubes were not the first and by no means the last to explore the double entendre possibilities of sushi and sex. *Urban Dictionary* contains many citations that use sushi as a substitute for various sex acts, a hot guy or a woman's genitals.<sup>37</sup> Such innuendos were not lost on high-school students. Note

Judd Nelson's famous reply to Molly Ringwald in *The Breakfast Club*: 'You won't accept a guy's tongue in your mouth and you are going to eat that?' *Repo Man*, a 1984 film also popular among high-school students at the time and featuring Emilio Estevez, who would later appear in *The Breakfast Club*, introduced audiences to Los Angeles punk music and to the memorable tagline 'Let's go get sushi and not pay.' The punks who aspired to sushi simultaneously rebelled against the fact that sushi was an elite food that they could not afford. In 1987 a restaurant reviewer in the *New York Times* commented, 'sushi has become the fast food of the executive set.'<sup>38</sup> In less than twenty years, sushi went from hippy to yuppie food.

Sushi restaurants on the West Coast enjoyed an initial geographic advantage in their ability to obtain food products from Japan and from their willingness to innovate. As early as the 1950s the Mutual Trading Company began supplying restaurants and consumers in California with Japanese products. A decade



California roll.



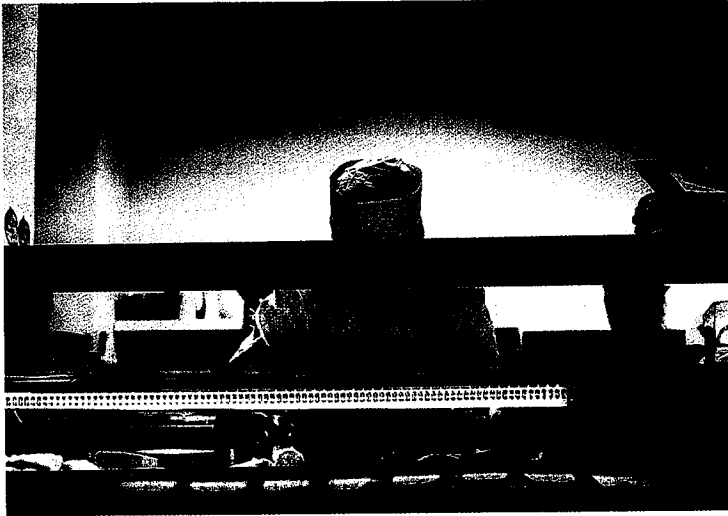
later, Japan Airlines began shipping from Tsukiji, Japan's main fish market in Tokyo, to America's West Coast.

Los Angeles's Little Tokyo also gave birth to the California roll in 1962, 1964 or 1971, depending on who is telling the story. Some contend that the California roll, made with avocado, imitation crab and mayonnaise, was concocted as a substitute for fish unavailable in certain months of the year. Others say that the roll was an attempt to make sushi palatable for white America, especially by turning the rice inside out to hide the nori.<sup>39</sup> A difficulty in trying to learn the origin of the California roll is that it is not mentioned in American newspapers until 1979, according to one scholar's survey.<sup>40</sup> In any event, the California roll became, for many Americans, a gateway to try Japanese food in the same way that guacamole and nachos were entry points for Mexican cuisine for the same population.<sup>41</sup>

Japanese restaurants were expensive in the United States until conveyor-belt sushi restaurants broadened the market. New York saw the first open in the United States in 1974, when Genroku established a branch in Manhattan. A menu dated to 1985 from Genroku on 366 Fifth Avenue preserved in the collection of the New York Public Library shows that the restaurant offered both Chinese and Japanese food. The menu advertises 'Chinese – Japanese Food on Conveyor', listing nigirizushi, beef chop suey, eggrolls (harumaki) and hot and sour soup or miso soup. The shop also sold takeaway sushi.<sup>42</sup> Conveyor-belt sushi offered cost-saving measures for restaurant owners, which they could pass on to customers. Customers could be served the moment that they sat down, and waiters were not needed at all, just a cashier to count the type and number of plates a customer had used.<sup>43</sup> With its clarity of pricing and without a potentially intimidating foreign chef to interact with, conveyor-belt sushi places offered an easy entry to the world of sushi. In 1987 the

Sushida chain of conveyor-belt sushi shops arrived in New York and within ten years had fifty outlets. Three years later, the first machine-made sushi debuted in the city at chain stores, which provided a way to keep labour costs even lower. Higher-end sushi restaurants did not lose customers to these low-cost competitors, according to Japanese restaurateur Matsumoto Hirota, because they targeted an upscale market.<sup>44</sup>

By 2003 every state in America had a Japanese restaurant and 70 per cent of these were operated by Japanese, but that number gradually changed. Today 80 per cent of Japanese restaurants in the United States are operated by non-Japanese, many of whom are Asians from other countries, including Taiwan, Thailand, Indonesia, China, South Korea, the Philippines, Cambodia and Vietnam. One reason for this shift is that the earlier generation of Japanese restaurateurs could not find successors to take on ownership of their establishments when they retired.<sup>45</sup> Writing broadly of ethnic succession in the restaurant trade, food studies scholar Krishnendu Ray observes that ethnic entrepreneurs initially succeeded because they could capitalize on their unique knowledge of the foods from their native lands. Ethnic chefs could also make up for a lack of capital by hard work and through the unpaid labour of relatives. Those who were successful could see their children go to college, but that step made the prospect of returning to the hard work of a restaurant less appealing for these college grads than other career paths. Consequently, many of the sons and daughters of restaurant owners left the trade for other work.<sup>46</sup> If the Japanese owner of a restaurant in the United States wants to hire a Japanese chef, he generally has to pay them more than chefs of other Asian countries, according to Ray. However, the main reason that non-Japanese Asians gravitated into the Japanese restaurant trade in the United States was because of the high level of prestige of Japanese cuisine, which



Sushi chef.

is closer to that of French or another European cuisine than to other 'ethnic' cuisines. Ray explains that 'ethnic' foods are undervalued not because of the quality of the food, but precisely when there are more people associated with that ethnicity in the United States.<sup>47</sup> A Filipino restaurateur can charge much more if he passes as Japanese and serves Japanese food than if he were to offer Filipino or Mexican food. Writing about the shift from Japanese sushi chefs to those of other ethnicities in recent years, Laresh Jayasanaker observes, 'while it may have been necessary at one time for a sushi bar to have a Japanese-looking person behind the counter, it was slowly becoming acceptable to have Mexican American chefs, or "susheros," crafting tuna rolls at many spots.'<sup>48</sup>

Non-Japanese owner-operators of restaurants in the U.S. have brought innovation but also criticism. Chinese immigrants from Fujian province came to New York in the 1980s, where

many entered the restaurant business and recognized that they could sell a sushi roll for much more than an eggroll. Sushi also drew more customers than Chinese food, which suffered for its associations with frying and monosodium glutamate (MSG). These Chinese restaurateurs added sushi bars to their restaurants and created new makizushi rolls and toppings that are now the mainstay of sushi in the United States, such as the rolls that one finds in supermarkets topped with spicy mayonnaise, Chinese eel sauce, hot sauce and the like.<sup>49</sup> Profitable for restaurateurs, the sushi rolls served in these venues were still much less expensive for customers than the sushi in a Japanese restaurant.<sup>50</sup> Ogawa Hirotooshi, a chef and self-styled 'sushi samurai' who claims to have travelled to forty nations to observe conditions in Japanese restaurants, recalled the Japanese restaurants in the United States with 'locals' at the front of the house and Spanish



Red Dragon roll (shrimp tempura, tuna, avocado, red and wasabi tobiko, spicy mayo, eel sauce).

spoken at the back. While lamenting the fact that the cooking staff from Mexico and South America were underpaid, Ogawa nevertheless warned of the conditions in kitchens outside Japan operated by people who have never eaten sashimi before and 90 per cent of whom had never handled raw fish either. Ogawa reported witnessing chefs prepare fish on the same cutting boards where they had just sliced raw meat. He warned that not only did such practices increase the chance of food poisoning, they also threatened to denigrate the positive image of Japanese cuisine and sushi.<sup>51</sup>

Growing concerned with the rapid increase in non-Japanese-owned Japanese restaurants abroad and the quality of the food they served, in 2006 Japan's Ministry of Agriculture, Forestry and Fisheries launched a programme to certify overseas Japanese restaurants that served 'genuine' Japanese food. In American media, that initiative came to be called the 'Sushi Police'.<sup>52</sup> Where the 2006 certification programme failed was in the Japanese government's assertion of authority over the authenticity of Japanese restaurants abroad. However, since then (and actually well before 2006 too) the Japanese government has made an effort to gain a favourable image abroad and improve its balance of trade by promoting Japanese food internationally. A recent highpoint in these efforts was the United Nations Educational, Scientific and Cultural Organization (UNESCO) certification of the 'traditional dietary cultures of the Japanese (*washoku*)' in 2013.<sup>53</sup> Today the Japanese government supports non-governmental organizations (NGOs) to try to affect the types of food sold in Japanese restaurants outside of Japan by inviting non-Japanese restaurateurs and chefs to gain certification for their use of Japanese ingredients and for their cooking skills. Chef Ogawa Hirotochi is the director of the World Sushi Skills Institute, 'the only sushi association credited by the Japanese government',

which holds the annual Sushi Cup where chefs come to Japan to earn a 'black belt' in sushi. In cooperation with JETRO, since 2014 Ogawa also operates sushi-training workshops internationally that provide certification in sushi-making to students.<sup>54</sup>

The Sushi Police live on as an animated series broadcast in 2016 in Japan, showing how anxiety over non-Japanese creating Japanese food has spread to Japanese popular culture. In each five-minute episode, a three-man team of officers from the fictitious World Food Conservation Organization travel outside of Japan to discover inauthentic Japanese food. Armed with wasabi machine guns, a vacuum to collect illicit sushi and chopstick nunchaku, the Sushi Police bust illicit sushi restaurants around the globe. Sushi Police parodies government attempts to authenticate sushi outside of Japan, but at the same time implies that the fear of foreign sushi is justified because it is dubious, unhealthy and criminal. The fish intended to be made into this obscene non-Japanese sushi are shown weeping.<sup>55</sup>

## SUSHI GOES GLOBAL

The establishment of Japanese restaurants in Europe followed the pattern of the United States, timed to the influx of Japanese businesses and capital, with Japanese expats opening restaurants that catered first to their compatriots before expanding their trade to other clientele.<sup>56</sup> In 1965 an article in *The Times* declaimed, 'in the whole of Britain there is not one restaurant specializing in Japanese meals, compared with the thousands of Indian and Chinese establishments that have shot up since the war.'<sup>57</sup> This absence provided the author with a reason to offer a recipe for sushi, the 'universal favourite in Japan that it is eaten at all times and at all occasions'. That recipe included Ajinomoto (aka MSG), 'the universal seasoning of Japan'.<sup>58</sup>

With Japanese investment, from the 1960s expats opened restaurants and brought sushi to Europe, with Asians from other countries opening their own Japanese restaurants soon after. Japanese opened the first post-war Japanese restaurant in Germany in Hamburg in 1962 and another in Düsseldorf two years later. Today, Düsseldorf has one of the largest Japanese communities in Europe, but most of the Japanese restaurants there are owned by Koreans or Chinese or by German chains.<sup>59</sup> These restaurants are riding the crest of the sushi boom of the 1990s, which occurred, according to food scholar Katarzyna Cwiertka, with the debut of restaurants catering to non-Japanese spurred by the prominence of sushi in American popular culture.<sup>60</sup>

As in the United States, conveyor-belt sushi restaurants made sushi more approachable and affordable in Europe. The first of these restaurants opened in Paris in 1984. London-developed sushi chain stores Itsu and Yo! Sushi debuted in 1997. Yo! Sushi was launched by Simon Woodroffe, who had cut his teeth staging rock concerts in London and LA. Yo! Sushi targeted the same group of trendy urbanites as Moshi Moshi, a sushi restaurant chain founded by Caroline Bennett in 1994.<sup>61</sup> A 2015 JETRO survey found 518 Japanese restaurants in London. Of these, 440 were sushi restaurants with 125 of them being chain stores, including Yo! Sushi with 31 stores and the Japanese-owned Sushi Bar Atari-ya with six stores.<sup>62</sup> In the same year, Italy had six different sushi chain restaurants with 630 Japanese restaurants total nationally.<sup>63</sup>

In Eastern Europe sushi came to Poland after 1990, beginning in Warsaw. From 2001 to 2014 the number of places serving sushi grew tenfold, from twelve to 120 establishments.<sup>64</sup> In Russia the restaurant Evraziya (Eurasia), which opened in St Petersburg in 2001, now has 100 shops, and there are 21 in Ukraine.<sup>65</sup>

In Hong Kong upscale Japanese restaurants were established in the 1960s to cater for Japanese working abroad, but the real take-off point for the popularization of Japanese food began in the 1980s. After the return of Hong Kong to China in 1997, eating Japanese food was one way for the people of Hong Kong to distinguish themselves from the population in mainland China.<sup>66</sup>

### SUSHI FISHING GOES GLOBAL

As the number of Japanese restaurants has spread around the world, so has the sourcing of Japanese food, and that has changed sushi globally, particularly in Japan, where seafood has been an important part of the diet since the Jōmon period (10,000 to mid-second or first millennium BCE). Whereas the hunter-gatherer Jōmon people ate some fifty varieties of seafood, Japanese today eat around two hundred, thanks to the global reach of the Japanese fishing industry and seafood business.<sup>67</sup>

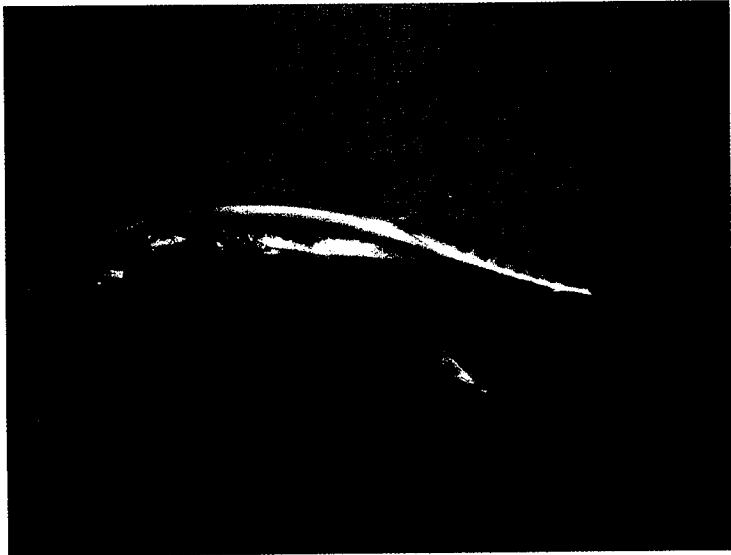
Commercial fishing began in Japan in the medieval period, when large-scale operations developed on Lake Biwa with fishermen who used nets and weirs to capture freshwater fish for markets in Kyoto. Ise Bay, Wakasa Bay and Izu were also important medieval fishing ports.<sup>68</sup> However, the take-off point for commercial fishing in Japan was the early modern period. In the seventeenth century the shogunal government invited fishermen from the Kansai area to settle in Edo, and granted fishing villages usage rights to the waters in and around Edo Bay. In return for selling part of their catch to the government at a reduced rate, the 45 fishing villages using Edo Bay paid no taxes for most of the early modern period. That law changed in 1792, but the fishing villages often still received relief from tax payments.<sup>69</sup>

Edo's population exceeded one million by 1700, placing greater demands on nearby waters for marine products. During the early modern period, the concept of 'before Edo' (Edomae) became a shorthand for 'fresh seafood', a term that expanded in usage from initially referring to the waters of the city's rivers and the inner bay (some 920 square km, 355 square mi.) to encompass later the Pacific coastal provinces of Sagami, Awa, Kazusa and Shimōsa provinces (modern Kanagawa, Tokushima and Chiba Prefectures).<sup>70</sup> Fish was an important protein source and sardines and herring were also netted to use for fertilizer.<sup>71</sup> The high rate of consumption of seafood in the city in the early nineteenth century made shipping fish to Edo profitable.

Laws that had prohibited deep-sea fishing in the early modern period to prevent illicit trade and secure the country's borders were eliminated in the Meiji period (1868–1912). The abolition of feudal controls on fishing left fishers unregulated in the bay and overfishing in the 1860s and '70s led to a decline in catch sizes and a sharp economic downturn for fishing villages working the bay.<sup>72</sup> As Japan modernized and further urbanized, the quality of Tokyo (formerly Edo) Bay's waters suffered. Urban factories polluted the bay with their emissions and tidelines were filled in, destroying the breeding grounds for many marine species. By the beginning of the twentieth century, Japan's fishermen had to chase catches further from their coast. After the First World War, Japan established tuna-fishing bases in former German colonies in the Marshall Islands, the Marianas and the Palau Islands. Diesel engines allowed Japan's fishing vessels to operate in the South China Sea and Bering Sea by the late 1930s.<sup>73</sup>

Notwithstanding the Second World War, which destroyed Japan's fishing fleet and ports, Japan led the world in fish landings for all but the last decade of the twentieth century,

and contributed to the depletion of fish stocks initially in the Pacific Ocean and globally after the Second World War. Scholars Vaclav Smil and Kazuhiko Kobayashi provide four reasons for the expansion of Japan's industrial fishing operations from the 1950s. First, Japan rapidly developed shipbuilding operations to supply the fishing industry. Second, the inexpensive price of diesel fuel in the 1950s and '60s made long-distance fishing operations economically feasible. Third, expansion of the Japanese population provided cheap labour for fishing crews. Finally, and most critically, the oceans were ripe for exploitation given that international law held that a nation's sovereignty ended 5 kilometres (3 mi.) from their shoreline.<sup>74</sup> To this list one could also add advancements in refrigeration, specifically the advent of super-cooled freezers used on industrial fishing vessels, which allow fish to be preserved and brought to market at the optimal moment and condition to obtain the best prices. These developments incentivized fishing fleets to pursue bluefin and other fish high in value, allowing the emergence by the 1980s of a luxury trade for tuna in Tokyo's Tsukiji market where one fish, whether it was caught on a trawler plying equatorial waters or flown in by plane from the North Atlantic, sold for the equivalent of tens of thousands of dollars.<sup>75</sup> The circumstances led to the overfishing of bluefin. For example, it is estimated that in the year 2000, Japan's total catch of bluefin was three times its reported catch, the equivalent of the global catch of that species that year.<sup>76</sup> By the time commercial fishing ended in Tokyo Bay by 1962 and in Osaka by 1969, Japan had already developed an extensive and advanced fleet of long-range fishing boats to supply its markets with the globally highest number of landings of marine life until 1994, when it was exceeded by China.<sup>77</sup> By then Edomae had long only meant fresh fish, regardless of the point on the globe from which they originated.<sup>78</sup>



Pacific bluefin tuna.

Besides operating its own fleet, Japan imports fish globally from other producers. According to the Food and Agriculture Organization (FAO) of the United Nations, as of 2016, Japan ranked seventh in terms of global seafood landings behind China, Indonesia, India, the USA, the Russian Federation and Peru.<sup>79</sup> Many of these countries ship their fish to Japan, where seafood imports doubled between 1985 and 1995 and are above 3 million metric tonnes, allowing Japan's population to enjoy the highest level of seafood consumption per capita, a share roughly five times the country's share of the global population.<sup>80</sup> As of 2016, Japan still leads in per capita seafood consumption, but it is expected to be surpassed by China in 2026.<sup>81</sup>

The expansion of industrial fishing has taken a toll on marine resources and world fish stocks. A 2012 FAO report found that more than half of the globe's fishing stocks were fully exploited

and almost 30 per cent were depleted or overexploited, leaving only 12.7 per cent that could be expanded.<sup>82</sup> Whether one explains the depletion of global fishing stocks as the 'tragedy of the commons' – in other words, the exploitation of resources that no one owns directly – or as a contradiction of capitalism in which economic activity depends upon degrading the environment in ways that undermine that very same economic activity, the fact is that global fish stocks, especially for predatory species such as bluefin tuna, are at a point of crisis.<sup>83</sup> In their assessment of the environmental impact of the fishing industry on bluefin stocks, Smil and Kobayashi write, 'even a complete ban on fishing in the Mediterranean and in the northeast Atlantic might not prevent an impending collapse of that fishery.'<sup>84</sup> Beyond bluefin, a 2019 FAO report estimated that one in five fish is taken illegally or is unreported, 'posing a serious sustainability risk to the world's oceans and to their ecosystem management'.<sup>85</sup>

Aquaculture is one possible solution to this dilemma. Since 1961 aquaculture has grown 3.2 per cent annually, about twice the rate of population growth; as of 2016 aquaculture accounted for \$232 billion of \$362 billion of global fish landings.<sup>86</sup> However, aquaculture does not necessarily lead to a decline in open-water fishing. 'In intensive aquaculture', writes geographer Becky Mansfield, 'fish are fed fish meal and fish oil that come from capture fisheries of wild fish. The rise of aquaculture has fuelled increased fishing activity for the low-value fish used in fish meal.' Moreover, Mansfield points out that aquaculture produces 'materially different fish' from those in the wild. Farm-raised fish are bred to be brought to market faster and have their own health issues. Farmed shrimp and salmon can be exposed to chemical fertilizers to boost levels of phytoplankton consumed by the fish. Farmed fish can encounter pesticides, anti-foulants, flocculants and disinfectants that are used to control the



Tsukiji fish market, Tokyo.

environment of the water in which they are raised. They are also sometimes given antibiotics, anti-parasite and anti-fungal medicines to keep them healthy. 'Given the potential for cumulative effects over the long term', Mansfield writes, 'it is difficult to conduct a risk analysis that could reasonably assert that there are (or are not) problems associated with these chemicals.'<sup>87</sup>

## FISH, SUSHI AND GLOBAL HEALTH CONCERNS

As many commentators have noted, it is often hard for consumers to balance the health benefits of fish consumption against its possible ill effects. Yet the prevailing message for consumers is that it is better to consume some fish than not. Unfortunately, we may not know all we want to about the fish we are eating. One-third of the seafood sold in the United States is mislabelled.<sup>88</sup> Environmental pollution is a vast problem, and raises many questions about whether fish and sushi are safe to eat. We can raise only a few of these issues here.

The aftermath of the Fukushima nuclear accident in March 2011 prompted approximately 470,000 evacuations when the coastal region and the area surrounding the three reactors, devastated by earthquakes and a tsunami, also had to cope with the fallout of radioactive materials. On land, the Japanese government carted away topsoil and stripped the bark from trees to remove radioactive caesium, but many experts were also worried about the impact of the nuclear disaster on marine life. Radioactive nucleotides were discovered in migratory bluefin tuna caught off the coast of California in 2011. However, a study published in 2013 in the *Proceedings of the National Academy of Sciences of the United States* found that three or four times more radiation in the bluefin samples was caused by background radiation already in the environment, and that eating the tuna contaminated by the nuclear accident would mean consuming less than a dose received from a medical procedure, plane travel or by eating food items with naturally occurring nucleotides.<sup>89</sup> Unlike on land, ocean currents can disperse radioactive material, diluting it. High rates of caesium detected on the coast near the Fukushima site weeks after the accident have receded to lower levels. A 2016 scientific commentary in the same



Buyers and sellers at the Tsukiji fish market in Tokyo, 2012.

journal queried the risks of seafood consumption in Japan and elsewhere and found that radiation levels were very low in marine and freshwater species and posed low risks for human consumption.<sup>90</sup> Most of the radiation in the ocean comes from Cold War nuclear tests.<sup>91</sup>

In 2012, one year after the Fukushima accident, Japan revised its standards for radiation levels in food (measured in becquerels, Bq) so that they are among the most stringent globally. Japan only allows 100Bq per kilogram of seafood, whereas the United States allowed 1,200Bq, China 800 and South Korea 370.<sup>92</sup> The Japanese government has instituted a stringent testing programme for its foodstuffs, and reported that for the prefectures outside Fukushima, after September 2014 there were no samples of marine species collected that exceeded government limits; since April 2015, the same is true for Fukushima.<sup>93</sup> As for rice, vegetables, meat and eggs, none of the seventeen prefectures near and including Fukushima have

exceeded levels for radioactivity according to government tests in 2015.<sup>94</sup> However, that has not convinced everyone of the safety of Japan's domestic food supply.<sup>95</sup>

As with radiation, microplastics are ubiquitous to the world's oceans and are raising health concerns. A 2019 FAO report described finding microplastics in 220 different species of marine life, 55 per cent of which were commercial varieties, including mussels, oysters, Atlantic and chub mackerel, sardines and Norway lobster. However, the same report indicated a lack of data about the extent to which microplastics are dispersed in these species globally, and it stated that the health effects of consuming these have yet to be determined. Since deposits of microplastics collect in the guts of marine creatures, contamination with microplastics seems to be of most concern for smaller fish and crustaceans that are consumed whole, as opposed to larger fish in which the viscera are removed before eating. The FAO report, like most literature on potential ill effects from seafood consumption, cautions, 'On the basis of current evidence, the risk of not including fish in our diets is far greater than the risks posed by exposure to plastic-related contaminants in fish products.'<sup>96</sup> Still, that might provide cold comfort to those who are worried about invisible plastic particles in their seafood.

Microplastics have also been found in beer, honey, water and breast milk, but seafood is one of the main sources for exposure to mercury poisoning.<sup>97</sup> Mercury originates from coal-burning power plants and illegal gold mines. It is a neurotoxin, and mercury poisoning can cause muscle weakness, rashes, numbness and kidney problems, and is detrimental to brain development. Fish absorb bacteria contaminated with mercury and the mercury bioaccumulates up the food chain, so that large, predatory fish such as bluefin tuna have particularly high levels. The U.S. Food and Drug Administration (FDA)



recommends that pregnant women, women who might become pregnant and women who are breastfeeding – in other words, all pre-menopausal women – limit their intake of swordfish and albacore tuna to 340 g (12 oz) a week. As Becky Mansfield observes, rather than address the problems of mercury and other pollutants in the environment, these guidelines place the burden on women to monitor their seafood intake.<sup>98</sup>

Another concern for seafood consumption is child labour and human trafficking. A 2018 FAO report concluded that child labour is widespread in the fishing and aquaculture sector, which employs one out of ten people globally.<sup>99</sup> Recent trends in the fishing industry such as illegal fishing have led to the employment of migrant workers and have facilitated human trafficking in the fishing industry, according to a 2013 International Labour Organization report. The problem is especially acute in developing nations. The report states,

By far the most studied occurrence of forced labour and human trafficking in the fisheries sector is that which takes place in the Greater Mekong sub-Region and in particular the Thai fisheries sector.

But deceptive and coercive labour practices have also been documented in New Zealand, Russia, Turkey, South Korea, Ireland, Scotland and West Africa. In other words, forced labour in the fishing industry exists in most regions of the world and probably to a much greater extent than is known, since it goes unreported.<sup>100</sup>

The aforementioned issues are a concern for the fishing industry globally, but there are also specific health worries about consuming sushi. Fish used in sushi can contain roundworms, tapeworms and flukes that could be passed on to the consumer

when the fish is consumed raw. However, winding up with a parasite after eating sushi seems to be extremely rare, owing to government regulations and the practices of qualified chefs. In the United States, the FDA's Hazard Analysis and Critical Control Point (HACCP) rules require that fish be frozen for sushi, such as at or below  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) for seven days, long and cold enough to kill any parasites.<sup>101</sup> In the United Kingdom, fish for sashimi and sushi must be frozen at  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) for at least 24 hours, or at  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ ) for at least fifteen hours.<sup>102</sup> Long before similar regulations existed, sushi chefs endeavoured to use the freshest fish possible and examined the fish for parasites when they sliced it.<sup>103</sup> These practices make parasitic infections rare, although not unheard of. In Japan, cases of roundworm (*Anisakis*) infection have been reported from eating sushi.<sup>104</sup> Sushi and sashimi of carp and salmon can contain the larvae of tapeworms (*Diphyllobothrium latum*), and these can grow up to 10 m (33 ft) in a human intestine; however, fewer than a hundred cases are



Roundworm in salmon.

reported annually in Japan. Sweetfish sushi may have intestinal flukes, but these are usually harmless to humans.<sup>105</sup>

Besides the chance of catching a parasite, eating fish raw increases the chance of contracting other seafood illnesses. Fish and shellfish can carry hepatitis, E. coli infections and typhoid, all of which are caused by contaminated water. Ciguatera is one of the most common fishborne illnesses and is also the most dangerous. It is caused by a toxin created by tiny plankton in an algae bloom or red tide. Approximately 50,000 people a year are affected by ciguatera, enduring numbness that can lead to paralysis and sometimes death.<sup>106</sup>

Beyond potential problems with the fish, the way that sushi is made also has an impact on health. Sushi has a reputation for being healthy, but the sushi rolls that are popular in sushi restaurants, takeaway places and conveyor-belt shops globally can be deceptively high in calories, sodium and cholesterol. I recently looked at the nutritional information for two supermarket chains in the U.S. Midwest and compared the contents of the makizushi with the prosaic hamburger and Big Mac from McDonald's. The results shocked me.

Dillons Dragon Roll contained twice the calories and cholesterol of a McDonald's hamburger. The sodium levels in some of the sushi are also concerning. The U.S. FDA recommends consuming no more than 2,300 mg of sodium a day, although the American Heart Association suggests no more than 1,500 mg daily.<sup>107</sup> The Hyvee Nori Sushi Crispy California Roll tops in at 2,020 mg of sodium, 87.8 per cent of the recommended daily value, and that is before it is dipped in soy sauce!

Unfortunately, we do not often have ready access to the nutritional information on sushi. I found some of these sushi products at one of the local branches of one of these supermarkets, but those items did not display nutritional information on

### Nutrition Content of Supermarket Sushi Rolls<sup>108</sup>

NAME/WEIGHT	CALORIES	SATURATED FAT (grams)	SODIUM (mg)	CHOLESTEROL (mg)
Dillons California Sushi Roll (8 oz)	460	5	1,150	10
Dillons Dragon Sushi Roll (10¾ oz)	560	4	890	65
Dillons Crunchy Roll (9 oz)	680	12	1,170	35
Hyvee Nori Sushi Crunchy California Roll (8 oz)	550	2	1,900	10
Hyvee Nori Sushi Crispy California Roll (8 oz)	640	7	2,020	10
Hyvee Nori Sushi Philadelphia Roll (7 oz)	450	7	1,190	35
McDonald's Hamburger	250	3	480	30
Big Mac	540	10	940	80

their packaging. Perhaps the fried onions, tempura toppings, sauces, mayonnaise and other ingredients should serve as enough of a warning that the sushi roll we plan to enjoy may not be very healthy after all.

A sensationalist article titled 'Sushi: The Raw Truth', appeared in the UK's *Daily Mail* in 2006 warning that 'sushi contains a cocktail of chemicals, heavy metals and pesticides which can potentially lower intelligence, reduce fertility and even lead to cancer'.<sup>109</sup> The article even went so far as to warn that contaminated salmon might cause 'gender bending' – 'making young boys more feminine and girls more masculine, which may also affect sexual orientation later in life'. While drawing attention to 'the polluted salmon lochs of Scotland and the filthy seas of southern Europe and the Far East', the article did not support its claims about the dangers of sushi; nor did it demonstrate that consuming sushi is any more harmful than eating other types of seafood, as in the British favourite fish and chips. While the article paints all sushi with the same brush, it is important



Grocery-store sushi from Pittsburgh, 2015.

to remember that sushi can be made with all types of fish (or without them) and according to many different methods. As consumers, what is most important is that we become mindful of where all our food comes from, how it is produced and sold, and what effects that food has on the environment, the people who produce it and ourselves.

Rather than condemn a method of food preparation such as sushi-making out of hand, it is better to choose sushi options that are healthier for us and for the environment. We can refer to guides to sustainable fishing such as the Monterey Bay Aquarium's free Seafood Watch app, which suggests which varieties of fish are landed sustainably and which are not. Unfortunately, when we sit down to sushi we may not know if the skipjack tuna we are having was caught with trolling lines in the East Pacific or was captured by a floating-object purse seine in the Atlantic Ocean. That means that unless we trust the chef and can 'leave it to them' (*omakase*) we should be prepared to make some very specific choices when ordering sushi, avoiding bluefin tuna entirely as well as other wild and farmed fish that are not eco-certified by the Marine Stewardship Council or the Aquaculture Stewardship Council, two organizations that promote sustainable fishing and fish farming. The best choice may be to make our own makizushi and fill our rolls with what we like and know is good.

## CHIRASHIZUSHI WITH SUMMER VEGETABLES

(2 servings)

This is a vegetarian version of chirashizushi that often changes in my home depending on what is on hand.

2 cups [480 ml] cooked short-grain rice  
vinegar (rice or apple cider vinegar preferred)  
2 teaspoons sugar  
½ teaspoon salt

For the kinshi tamago (shredded egg):

2 eggs  
1 teaspoon sugar  
pinch of salt  
oil

Vegetables:

1 cup [240 ml] boiled corn (fresh or frozen)  
½ cup [120 ml] salted cucumber: about half a cucumber;  
½ teaspoon salt  
½ cup [120 ml] boiled edamame (fresh or frozen)  
1 sliced avocado  
5 halved cherry tomatoes  
lightly boiled and sliced okra (optional)  
pickled lotus root (optional): small lotus root 2 inches [5 cm]  
in length; 1 cup [240 ml] water; 1 teaspoon vinegar for boiling  
and 1 teaspoon for marinade; 1 tablespoon sugar;  
1 teaspoon salt  
pickled ginger (optional)  
thinly chopped shiso (optional)

Make the salted cucumber and pickled lotus roots in advance.

Salted cucumber

Wash and slice half of a cucumber and cut it as thin as possible. Sprinkle salt and let it sit for at least 30 minutes. Squeeze any water from the cucumber.

Pickled lotus

Wash and peel off the skin, then slice the lotus root thinly. Add vinegar into boiling water. Boil the lotus for 3 minutes. Make a vinegar mixture by adding water, vinegar, sugar and salt in a small bowl. Soak the cooked lotus in the mixture for at least 1 hour.

Mix a tablespoon of vinegar, the sugar and salt in a large bowl. Transfer the hot, cooked rice into the vinegar mixture. Mix it gently. Let it rest for 30 minutes to cool to room temperature. While the rice cools, make the shredded eggs (kinshi tamago)

Kinshi tamago

Beat eggs; add the sugar and salt. Heat a non-stick pan on medium heat. Apply a thin layer of vegetable oil to the pan. Pour a small amount of egg mixture into the pan and swirl it around as if making a thin crepe. Lower the heat and wait until the egg has solidified. If it looks uncooked, flip it over and cook for a few more seconds. Transfer to a plate. Make 3-4 and stack them up. When they are cool, roll them up and cut into thin strips.

Divide the rice into two shallow bowls and top with all the ingredients.