

Ask the fans of raw tuna – or maguro, in sashimi-speak – why they love this fish so much and many would find it hard to describe the joy that it brings to the eyes and lips.

That deep raspberry hue, the velvety texture, the moistness and density of the flesh... The list of its charms just goes on. So bewitched are its devotees that a no-win outcome has emerged, with some species being driven to extinction from overfishing.

In our cover story dedicated to the prized fish, we discuss the different species, how they are graded, where they are found and how the industries that surround it operate.

No expose on tuna is complete without a paean to the bluefin – and how it was once regarded as fish not worthy even of cats in Japan. Now one of the most hunted creatures on the planet, checks are thankfully falling into place to keep the populations from decimation, but we could certainly do our part to prevent further contamination of the oceans and the environment, and to reduce demand. We need to protect it even as we celebrate it. 🐟

Hooked 封面故事 COVER STORY On Tuna

情牵金枪鱼

喜爱金枪鱼生鱼片（日文称为maguro）的人，恐怕大多无法具体描述它在视觉和味觉上所带来的喜悦。

那深红莓色泽，天鹅绒般滑顺的质感，水润度和紧实的肉质……其魅力当然不只这些。老饕们为它魂牵梦萦，以致某种金枪鱼因过度捕捞而濒临灭绝。

我们将这期的封面故事献给这珍贵的鱼种，分析不同的金枪鱼品种，告诉大家如何分辨其等级，哪里是它们经常出没的海域，以及其渔业的操作方式。

提到金枪鱼，不能不歌颂蓝鳍金枪鱼。它在日本一度被视为连猫都不屑的鱼类，如今却是地球上捕猎率最高的生物之一。值得欣慰的是，有关当局已实行各种措施，阻止金枪鱼数量下滑。

我们当然也应尽所能，预防海洋和环境污染，减少对金枪鱼的需求。我们既要继续歌颂、品味金枪鱼，也要全力保护它。

TEXT SASHA GONZALES & 吴庆康
PHOTO GETTY IMAGES

From Reviled To Revered

深海巨星

The tuna has seen its fate soar from a fish not fit to feed the cat to one of the most hunted creatures on earth

金枪鱼（也称鲔鱼）曾被世人唾弃，就连用来喂猫都嫌可耻。如今，它却是地球上捕猎率最高的海洋生物之一。

TEXT SASHA GONZALES / 郭莎莎

All year round, sashimi connoisseurs flock to 15 East in Manhattan to sample some of the best bluefin tuna outside of Japan. One of the most highly rated Japanese restaurants in New York City, 15 East serves only bluefin tuna and is known for its Tuna Flight, a dish consisting of two pieces each of five different cuts of the prized fish, including the meltingly fatty belly, called toro, and the lean, deep-red akami, which comes from the area around the tuna's spine and tail. At US\$80 (S\$100) a plate, the dish is not for the budget-conscious.

Owner and chef Marco Moreira says, depending on what time of the year it is or how good the season is in various parts of the world, the restaurant may get its supply of tuna from the Gulf of Mexico, Spain, Japan, locally from Montauk in Long Island or further up the east coast of the United States, from Massachusetts.

That the love for sashimi has crossed oceans from East to West and extended to an appreciation for the king of tuna fish, the bluefin, is both a wonderful and worrying trend – wonderful for how there is a growing appreciation of Japanese cuisine and culinary skills worldwide, and worrying for how unfettered demand can corrupt and deplete the ocean's precious resources.

After Japan, the United States and China are the world's biggest tuna consumers. According to Daniel Pauly, professor of fisheries at the Fisheries Centre at The University of British Columbia in Vancouver, the entire tuna industry is worth over US\$15 billion a year – that is about 20 per cent of the whole fishing industry. Tuna, he adds, usually fetches prices that are at least five times higher than other types of fish.

Tuna species include albacore, skipjack, big-eye, blackfin, yellowfin, longtail and the three species of bluefin, namely Atlantic bluefin, Pacific bluefin and



Bluefin tuna are massive and can grow up to several metres in length. (Photo: Getty Images)

Southern bluefin.

Bluefin, yellowfin, skipjack and big-eye are the most common species of tuna eaten in sashimi, with bluefin being the most delicious and, hence, most popular, while skipjack and albacore are usually used in canned tuna. According to the WWF, as the threat to the bluefin increases, the big-eye looks to be the next most-threatened specie to meet our dining demands.

You Can Tell From Its Smell

Caught mainly through commercial fishing, with Japan being the most important tuna-fishing country, these

fish are a tough prey because they are large and swim fast. The fishermen have to be very careful when landing their haul too: The tuna must be handled in a way that the skin remains intact and the flesh does not get bruised, because the fish's external appearance heavily influences the price of the catch.

It takes a highly experienced professional to grade tuna for the sashimi market because only the best-quality, premium fish will fetch the highest price.

First, the skin of the fish is inspected, the method with which it was caught is also considered and the fish is checked for fattiness (when it comes to the belly, the streakier the better), colour and clarity. The tail of the tuna is often cut to show its colour, moisture content and freshness.

Appearance and smell are what top chefs and restaurateurs look for when selecting sashimi-grade tuna from their suppliers. Chef Dan Segall, who helms the kitchens at two of Singapore's most popular Japanese restaurants, Kinki Restaurant + Bar and Fat Cow, says he only accepts tuna deliveries from his suppliers if the smell and colour of the fish meet his standards.

"Good, fresh tuna smells of seawater, iodine and rust," he shares. "When I check fish, I take a really deep inhale through my nose and let the smell fill my lungs. If there is anything wrong with the product, my stomach will turn – and that's a clear sign that it's not good enough."

When it comes to the tuna's appearance, he makes sure that the surface has no dry spots or iridescence, a sign of oxidation. "Bluefin tuna should be a deep red and yellowfin tuna, several shades lighter," he says. "Ultimately, both should be opaque and saturated with colour."

According to fifth-generation sushi chef Michiharu Inoue, who owns an Edo-style sushi restaurant called



Tuna are strong swimmers, thanks to their powerful fins and tail. (Photo: Getty Images)

Sushiyoshi in central Tokyo, the best tuna comes from Oma in Japan's northern Aomori prefecture, and Toi, in the northernmost prefecture of Hokkaido. "My father taught me how to select good tuna. It's all about the colour, texture, and moisture content of the flesh," he says.

From Sea To Table

Tsukiji Market in Tokyo is the biggest wholesale fish and seafood market in the world. The bluefin tuna auction, held in the pre-dawn hours, is by far the most exciting of all the fish auctions that take place there. Over in Australia, auctions are also held every weekday at the Sydney Fish Market, located in the city's inner west. Sydney Fish Market is the largest of its kind in the southern hemisphere and the world's second largest seafood market.

From these and other major wholesale seafood markets around the world, like Fulton Fish Market in New York City and Billingsgate Fish Market in London, different varieties of high-grade tuna are processed, packed and transported immediately to restaurants locally and internationally. "Tuna is really only a 'market' fish in Japan and a few other places in the world, mostly because of the size," says Segall. "The best fish to be found in Singapore are mostly imported directly by the restaurants. Some have their own importing licences and others use distributors."

If the chef relies on brokers for his supply of tuna, he has to be sure that he can entrust them with selecting the finest fish on his behalf. Says 15 East's Moreira: "Our tuna brokers or vendors have their own scouts who personally inspect the fish right at the dock. If they ship a

tuna that's not absolutely high quality and beautiful, we have the right of refusal, although this rarely happens. Therefore, I'd say that having a close relationship with your vendors is critical. Without this trust, we could not maintain our standards at 15 East all the time."

It is then up to another 15 East chef, Masato Shimizu, to decide if the tuna needs to be aged. If it is too fresh, he may let it age for a day or two. Otherwise, he breaks the fish down into steaks, wraps it in a special absorbent paper, wraps it again in plastic and stores it in a laboratory freezer that can get down to as low as minus 70 deg C. "The tuna is labelled according to the part it is from or its cut and fat content, and we store the packs in separate bins to keep them organised," adds Moreira.

At his restaurants in Singapore, Segall uses several different types of tuna sourced from various parts of the world. He purchases mostly yellowfin and big-eye, and smaller amounts of bluefin. He says the key to maintaining the flavour of the fish is to keep it cold, dry and protected from oxygen (or it will change colour). "But a very large fish is better if it has been killed several days before it is consumed. The meat needs time to relax from rigor mortis and a bit of cellular breakdown helps to enhance the flavour. It's very similar to ageing beef!"

In Hawaii, big-eye and yellowfin tuna are commonly used in ahi poke, a salad made from combining raw tuna pieces with sesame oil, spring onions, sliced white onions and shoyu.

Tuna appreciation is not all about eating it raw. Many Japanese restaurants offer tuna cooked in interesting ways and not always as cuts of meat. Kenji Maenaka, chef and owner of the bodega-style Izakaya

Fujiyama in Sydney, says his favourite part of the tuna is around the eyes. "On our menu, we call it the eye socket. It's more gelatinous than meaty or fatty, and it's quite a delicacy," he says. "We grill it to bring out its full flavour and serve it with condiments like ponzu, chilli and chopped shallots."

The Palate Does Not Lie

Maenaka loves working with tuna because it looks and tastes sublime. It has a rich flavour that is addictive and a beautiful, velvety texture. He also appreciates that the bluefin keeps a little longer than other types of tuna – after all, this is when its best flavours emerge.

"Gorgeous flavour, colour and texture aside, the combination of demand and scarcity is what I think has driven its value sky-high," Maenaka says. "People want what is difficult to get and with the bluefin, that is becoming increasingly so."

But it is also important to remember that you get what you pay for, he adds. "You can go to a premium Japanese restaurant and pay a large amount for a few slivers of sashimi or you can go to a chain restaurant and pay a lot less for sashimi served on a conveyor belt."

The cheaper plate would have come from a less popular type of tuna and a poorer grade of its kind that was deeply frozen and prepared by a chef with less experience.

A trained and experienced sushi chef would be able to tell just from looking at a slab of raw tuna if it meets the standards of a top restaurant. "To the untrained eye, all tuna might look the same but a real professional would be able to tell the difference," he shares. 🍣

生鱼片老饕们一年四季都会前往美国曼哈顿的15 East餐馆，品尝日本以外最鲜美的蓝鳍金枪鱼。这家餐馆是纽约市评价最高的日本餐馆之一，仅售蓝鳍金枪鱼。其招牌美食“金枪鱼大游行”，各有两片来自蓝鳍金枪鱼五个部位的生鱼片，如入口即化的肥美toro鱼肚，以及取自金枪鱼脊椎和尾巴部位、肉质坚实呈深红色的akami生鱼片。此佳肴售价80美元（100新元）一碟，令有预算限制的食客们望门兴叹。

餐馆创办人兼主厨马克莫雷拉（Marco Moreira）说，他会根据不同季节及世界各地海产的优劣，来决定是从墨西哥湾、西班牙、日本、纽约长岛蒙特克，或美国东海岸一带的马萨诸塞州等地区引进金枪鱼。

人们对生鱼片的热爱，已从东方跨越到西方，而他们对鲔鱼之王——蓝鳍金枪鱼的喜爱，是一个既美好又令人担忧的趋势。美好的是，日本料理及其烹饪技巧在世界各地越来越受重视，但令人担忧的是，人们对生鱼片的无限需求，很有可能破坏及消耗这珍贵的海洋资源。

继日本之后，美国和中国是全世界最大的金枪鱼消费国。据温哥华英属哥伦比亚大学渔业中心的丹尼尔保利（Daniel Pauly）博士透露，金枪鱼市场每年价值超过150亿美元——约整个捕鱼业市场的20%。他补充说，金枪鱼的价格比其他鱼种高出至少五倍。

金枪鱼的种类包括：长鳍金枪鱼（albacore）、鲣鱼（skipjack）、大目鲔、黑鳍金枪鱼、黄鳍金枪鱼、长尾金枪鱼及三种蓝鳍金枪鱼，即大西洋蓝鳍金枪鱼、太平洋蓝鳍金枪鱼和南部蓝鳍金枪鱼。

蓝鳍、黄鳍、鲣鱼和大目鲔是生鱼片中最常见的金枪鱼类，其中以蓝鳍金枪鱼最为美味，故最受欢迎。鲣鱼和长鳍金枪鱼则普遍用于罐装金枪鱼的制作。世界自然基金会资料显示，随着蓝鳍金枪鱼面临的威胁加剧，为了继续满足饕客的需求，大目鲔可能成为下一个濒危鱼类。

气味判等级

供应商主要以商业捕捞方式捕获金枪鱼，而日本是最重要的金枪鱼捕捞国之一。由于金枪鱼形体庞大又游得非常快，捕捞过程相当艰巨。此外，渔民在处理所收获的金枪鱼时也必须非常小心，因为它们的外观会直接影响售价。故此，渔民会小心翼翼搬运金枪鱼，以确保其鱼皮和肉身完美无缺。

唯有经验丰富的鱼贩才能辨别金枪鱼的等级，因为只有品质最优的鱼种才能卖出高价。

鱼贩首先会检查鱼皮、脂肪含量（鱼肚

呈现的条纹越多越好）、色泽和清晰度，其捕捞方式也要考虑在内。他们常将金枪鱼尾巴割断，以观察其色泽、水润和新鲜度。

顶级厨师和餐馆老板们主要依据金枪鱼的外形和气味，来选择生鱼片级的金枪鱼。新加坡两家广受欢迎的日本餐馆Kinki Restaurant + Bar和Fat Cow的主厨丹席格（Dan Segall）说，他只跟供应商购买气味和色泽符合自己标准的金枪鱼。

席格分享心得时说：“优质、新鲜的金枪鱼带有海水、碘和生锈的气味。故此，检查金枪鱼时，我会深深将其味吸进鼻子里，让气味充斥肺部。如果我的胃感觉不舒服，这便是一个非常明显的迹象，表示这条鱼不够好。”

此外，他也会确保金枪鱼表面没有枯斑或晕彩等氧化迹象。他说：“蓝鳍金枪鱼的肉质应该是深红色的，黄鳍金枪鱼的色调则较浅。最重要的是，两者的肉质不应透光且色泽饱和度要高。”

在东京市中心创办江户式寿司店Sushiyoshi的第五代寿司师傅Michiharu Inoue透露，最好的金枪鱼来自日本北部青森县（Aomori）的Oma，以及北海道最北端的Toi。他说：“父亲教我如何选择优质的金枪鱼。其色泽、纹理和肉质的水润度非常重要。”

从深海到餐桌

位于东京的筑地鱼市场是世界最大的鱼类和海鲜批发市场。在这里于黎明举行的蓝鳍金枪鱼拍卖最令人兴奋。位于澳大利亚悉尼市中心西部的悉尼鱼市场，同样也在每周日举行类似的鱼类拍卖会。悉尼鱼市场不但是南半球最大的海鲜市场，也是世界第二大海鲜批发市场。

除此之外，纽约市的Fulton鱼市和伦敦的Billingsgate鱼市等世界各地主要海鲜批发市场，也有份供应和包装运送不同种类的高级金枪鱼至当地和海外餐馆。Segall说：“介于金枪鱼的体型，它在日本和世界其他地方被定位为‘市场’鱼。在新加坡所品尝到最美味的鱼类，主要由餐馆直接进口。它们一部分拥有自己的进口许可证，另一些则通过经销商。”

若厨师需通过中间人提供金枪鱼，那他必须确保自己可以委托他们代替他挑选品质最好的鱼类。15 East餐馆创办人Moreira说：“我们的金枪鱼经销商会委派自己的员工亲自到码头检验鱼类。若他们将非顶级品质且不美观的金枪鱼出货给我们，我们绝对有拒绝的权利，但这种情况极少发生。餐馆业主与供应商保持密切关系至关重要，因为如果双方没有互信，我们是无法长久地维持15 East的水准的。”



新鲜上料等待下一个“行程”的金枪鱼。
(Photo: Getty Images)



蓝鳍金枪鱼是悉尼鱼市场的“巨星”，需求庞大。(Photo: Sydney Fish Market)

该餐馆另一名主厨Masato Shimuzu负责催化金枪鱼。如果金枪鱼太新鲜，他会让它“老化”一至两天。要不然，他会将金枪鱼切块，用特殊吸水纸包裹，再用塑料封装并存储在一个可低至零下70摄氏度的冷冻室。Moreira 补充道：“我们会根据鱼块原本的部位和切割及其脂肪含量有条理地储存在不同的盒子里。”

Segall的新加坡餐馆选购来自世界各地不同种类的金枪鱼，它们主要是黄鳍金枪鱼和大目鲔。此外，Segall也会购买小数量的蓝鳍金枪鱼。他透露保持鱼肉鲜美的关键就是将它们储存在冰冷、干燥的地方，且尽量不要让它们与空气接触（否则鱼肉会变色）。“但一条非常大的金枪鱼最好是在它被杀数日后才享用，因为我们需要时间让僵直的肉质放松，而且一小部分的细胞组织瓦解有助提味。这与催化牛肉相似。”

在夏威夷，人们普遍用大目鲔和黄鳍金枪鱼来制成一道有金枪鱼生鱼片、芝麻油、青葱、切片白洋葱和酱油的ahi poke沙拉。

想学习品味金枪鱼不见得非得将它生吃。许多日式餐馆就推出不少有趣的金枪鱼熟食佳肴。位于悉尼的酒窖式居酒屋Izakaya Fujiyama 创办人兼主厨前中健志表示自己最

喜欢的金枪鱼部位是它的眼睛。他说：“我们在餐单上称这道菜为眼窝。它的肉质带胶状，不太肥沃，且十分美味。我们会烧烤它以带出其风味，再以柑橘酱、辣椒和切碎的葱头作为调味。”

味蕾不说谎

Maenaka喜爱以金枪鱼为食材，因为它的外观和味道都是顶级的。它不但具有非常丰富且容易令人上瘾的味道，其肉质更如天鹅绒般顺滑。他也很欣慰地发现，蓝鳍金枪鱼的储存期比其他种类的金枪鱼更长，此时，它的味道也最美好。

他说：“除了金枪鱼的美味、色泽和质感，我认为其需求和稀缺是推动它价格不断升高的因素。人们想要得到难以获取的东西，蓝鳍金枪鱼因此越来越物以稀为贵。”

他不忘提醒，一分钱，一份货的道理。“你可以选择到高档日本餐馆享用几片非常昂贵的生鱼片，或到一家连锁餐馆享用在传送带上销售的廉价生鱼片。”

后者大多数选用较不受欢迎且级别较低的冷冻金枪鱼，并由经验浅的厨师来预备处理。

一名受过训练且经验丰富的寿司师傅只需看一眼生金枪鱼，便能知道它是否符合顶级

餐馆的标准。他分享道：“对未经训练的人来说，所有的金枪鱼看似相同，但一个真正的专业师傅一眼便能分辨出来。”



鱼商在东京筑地市场为金枪鱼进行“体检”。(Photo: Tsukiji Fish Market © JNTO)



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The Cult 鱼中之王 Of The Bluefin

Ernest Hemingway once called the bluefin tuna the 'king of all fish'. It was not an overstatement
海明威称蓝鳍金枪鱼为“鱼中之王”，真是一点都不夸张。

TEXT SASHA GONZALES / 郭莎莎



Securing the nets for the next big catch. (Photo: Getty Images)

Built like torpedoes, with their hydrodynamic shape and retractable dorsal and pectoral fins, bluefin tuna are powerful, steady swimmers and can dive to depths of more than 1,200m. They are large and heavy creatures too. On average, a bluefin can grow up to several metres in length and weigh up to 700kg, although catches have been reported that far exceed those figures.

There are three types of bluefin – Atlantic (also called Northern), Pacific and Southern – that are similar in appearance and live in the northern and central Atlantic Ocean, the north Pacific Ocean and the Mediterranean Sea.

The Pacific bluefin is the most at risk, followed by the Southern and then the Atlantic, according to Ray Hilborn, of the University of Washington's School of Aquatic and Fishery Sciences. Slow-growing, these beautiful creatures can live up to 30 years, but overfishing, global warming, pollution and a depletion of their prey all pose threats to their longevity.

The bluefin is often described as having a robust, slightly metallic flavour, with a firm and smooth, almost melt-in-the-mouth texture, making it ideal for sashimi and sushi. Its pale-pink, fatty belly is especially prized.

Like wagyu beef, this part of the fish is streaky, with the underside of the fish – close to the head – yielding a more marbled texture than the part of the belly that comes from the middle and back of the fish.

Japan is overwhelmingly the world's largest consumer of the bluefin, with about 90 per cent of hauls going there, says Daniel Pauly, professor of fisheries at the Fisheries Centre at The University of British Columbia in Vancouver. In Japanese cuisine, various varieties of tuna are used, such as the yellowfin and big-eye, but the bluefin is by far the most popular and most valued.

"There's no doubt that the demand for bluefin tuna has increased tremendously over the last couple of decades, but this demand is now greater than what can

be supplied, and it cannot be met by sustainable fishing practices either."

The soaring prices make fishing for tuna exceptionally lucrative too.

Last year, a 222kg fish sold at Tokyo's famed Tsukiji Market for a record-breaking US\$1.8 million (about US\$8,000 per kilogram or, ounce-for-ounce, twice the price of silver). The buyer of the monster fish was Kiyoshi Kimura, who owns the Sushi Zanmai restaurant chain in Japan. "The price was a little bit expensive," he was reported to have said after winning the bid. The previous year, Kimura set the same record when he paid US\$736,000 for a 268kg bluefin.

Once Considered Worthless

Many people think that tuna sashimi is a long-standing Japanese culinary tradition, but in fact, Japan's insatiable appetite for the bluefin is a relatively recent phenomenon. In the early 19th century, bluefin tuna fishing was considered a sport. Wealthy anglers hunted the creatures for fun, but because they considered tuna flesh too strong-flavoured and bloody to eat, they often threw the carcasses back into the water or disposed of them in landfills.

Bluefin tuna became a delicacy only in the mid-19th century. Trevor Corson, author of *The Story Of Sushi* (2007), notes that the Japanese used to refer to tuna as *neko-matagi* ("bad fish that even a cat would disdain"), preferring milder, more delicate fish varieties to the dark, beefy and strong-smelling bluefin. But supplies of tuna were plentiful and therefore cheap, and soon, street vendors would begin to peddle thin slices of raw bluefin dressed with *shoyu*.

It took still several more decades for the bluefin to achieve cult status. After World War II, many culinary changes were afoot in Japan. Western food, including beef, was growing in popularity and the Japanese palate grew gradually more accustomed to the bluefin's bold and robust flavour. Better refrigeration techniques were also developed around this time, making it easier for operators of fishing vessels to preserve vast quantities of fish and then distribute their frozen hauls more widely.



Gigantic frozen tuna for sale at Tokyo's Tsukiji Fish Market. (Photo: Tsukiji Fish Market © JNTO)

In the 1970s, Japanese cargo plane executives began promoting bluefin tuna for sushi. Japanese planes exporting electronic goods to the United States were returning home empty. To cover the costs of the return flight, the airline executives decided to fill the planes with frozen bluefin purchased cheaply from American fishing docks, bring them back to Tokyo, and sell them at inflated prices. The bluefin's reputation as a delicacy increased, and by the 1990s, it had become one of the most hunted varieties of fish on the planet.

The End Of The Line?

Today, the bluefin is the most overfished of all the tuna varieties. Commercial fishers use three different processes to bring in their catch, depending on the species of bluefin that's being targeted: Purse seining, long lining and trolling. Purse seining involves setting a large, circular net "wall" around the fish before "pursing" up the bottom to trap them. Long lining uses a long (often several kilometres long) main line with baited hooks attached at intervals. And trolling is where one or more fishing lines are drawn very slowly through the water by a moving vessel.

Over the last couple of decades, commercial fisheries have faced increasing difficulty catching adult bluefin, due to fast-depleting stocks. As a result, these wild fish are often caught as juveniles and then held in ranches where they are fattened through an overfeeding of fresh sardines, an oily fish. Once they have reached an appropriate size, they are then euthanised and sold. These ranched tuna are especially prized for their buttery-textured, fatty toro.

Japan has a small community of pole-and-line or

hand-line fishermen known as the *ippon zuri* who catch their tuna sustainably, one at a time. To preserve this tradition and also to protect local tuna stocks, the local authorities have designated three zones around Japan for the exclusive use of the country's 200-or-so *ippon zuri* fishermen.

Of the three species of bluefin, Pauly says that the Pacific variety is the most threatened, to the point where only 5 to 10 per cent of stocks are left. "The stock is on the way to becoming commercially extinct," he explains. "On the other hand, we've noticed a decline in the demand for Atlantic bluefin tuna and the yield for other varieties of tuna that are less valuable than the bluefin is increasing."

With numbers already in free fall, an increased awareness of the plight of the bluefin may not be enough to reverse the situation, as ironically, its publicised scarcity can drive up its price and prestige value and result in greater demand.

According to Hilborn, tuna stocks are already fully exploited and it does not seem likely that there will be further big increases in catch – not in the near future anyway. If we care about the bluefin, we should consume it in moderation but he feels that the key to rebuilding the tuna populations quickly is less about demand than about setting controls to stem overfishing.

The authorities may be listening. As part of an international agreement to protect declining bluefin stocks, fishing quotas have been tightened. Japan recently announced that, as of next year, it would halve the amount of juvenile bluefin tuna taken from the north Pacific in a bid to help boost existing numbers. 🐟

蓝鳍金枪鱼的流线体形和可伸缩的背鳍和胸鳍，使它和鱼雷相同，是海中强有力的生物，可潜至海底超过1200米，体积庞大，异常笨重。一条蓝鳍金枪鱼平均可长至4米长，重达700公斤。然而，我们经常在报道中得知不少被捕的蓝鳍金枪鱼比例远远超过这些数字。外观相似，居住于北部和中部大西洋、北太平洋和地中海域的蓝鳍金枪鱼，可分成三大类：大西洋（也称为北部）蓝鳍金枪鱼、太平洋蓝鳍金枪鱼，以及南部蓝鳍金枪鱼。

华盛顿大学鱼类与渔业科学学院的贺尔邦（Ray Hilborn）博士表示，太平洋蓝鳍金枪鱼的数量最受威胁，其次是南部蓝鳍金枪鱼和大西洋蓝鳍金枪鱼。这群美丽的海洋生物生长缓慢，能存活30年，但因过度捕捞、全球暖化、环境污染和它们所觅食的猎物数量逐渐下降等因素，对它们的生存造成了威胁。

蓝鳍金枪鱼的味道常被形容为强劲且略带金属味，其厚实、滑顺，几乎入口即化的口感更是使它成为理想生鱼片和寿司的上选。其淡粉色的多脂鱼肚尤其珍贵。它如同和牛一样，具有许多脂肪。由于鱼肚底部较接近头部，其肉质与中部和背部的鱼肚相比更具大理石般的条纹。

温哥华英属哥伦比亚大学渔业中心的丹尼尔保利（Daniel Pauly）博士表示，日本引进约90%的蓝鳍金枪鱼产量，使她成为压倒性的全球最大蓝鳍金枪鱼消费国。日本厨师会选用黄鳍金枪鱼和大目鲔等不同金枪鱼做料理，但蓝鳍金枪鱼至今仍是最受欢迎且最昂贵的金枪鱼。



捕捉到的金枪鱼一般比成人的体型还大。(Photo: Getty Images)

“毫无疑问，人们对蓝鳍金枪鱼的需求在过去几十年大幅增加，如今这股需求已超越渔业所能供应。换言之，这股需求已不能再依靠可持续性捕鱼方式来满足。”

金枪鱼不断上涨的天价也使其捕捞业更有利可图。

去年，一条222公斤的金枪鱼，以180万美元（约每公斤8000美元，以盎司计算的话，相当于白银价格的两倍）的破天荒价格于东京知名Tsukiji市场售出。购买这条巨型金枪鱼的买主是在日本创办Sushi Zanmai连锁餐馆的Kiyoshi Kimura。据说他在赢得此投标后表示：“价格确实有点贵。”前年，Kimura以73万6000美元购买一条268公斤重的蓝鳍金枪鱼，同样创下当年的最高记录。

曾被世人唾弃

许多人认为金枪鱼生鱼片是日本传统料理中的“常客”，但实际上，日本人对蓝鳍金枪鱼那永无止境的需求却是一个相当新的现象。19世纪

初，捕捞蓝鳍金枪鱼被视为一种运动，不少富裕的钓鱼爱好者以猎杀它们为乐，但由于他们嫌金枪鱼的肉质气味过于强劲与血腥，所以经常将尸体放回水里或扔进垃圾填埋场。

一直到19世纪中，蓝鳍金枪鱼才真正成为人们口中的美食。《寿司的故事》（2007年）作者Trevor Corson提到日本人较喜欢味道温和且肉质细腻的鱼品种，故不太愿意接受色泽较暗、肉质结实且散发强烈气味的蓝鳍金枪鱼。日本人当时还称金枪鱼为neko-matagi（即连猫都会嫌弃的坏鱼）。然而，由于金枪鱼的供应量充足，价格非常便宜，摊贩们很快就开始兜售配搭酱油的蓝鳍金枪鱼薄片。

尽管如此，蓝鳍金枪鱼还是等了数十年后，才达到现时的地位。第二次世界大战后，日本在饮食方面产生变化，牛肉等西方食品开始广受欢迎，而日本人的味蕾也逐渐习惯了蓝鳍金枪鱼大胆、强劲的味道。更完善的冷冻技术也在此时被研发，使经营渔业的人能更有效地保存数量庞大

的鱼，将其冷冻后广泛地销售出去。

上世纪70年代，日本运输机开始推广蓝鳍金枪鱼寿司。由于运送电子产品出口至美国的日本运输机每回都是空机回返日本，因此为了弥补回程成本，航空公司高层决定把从美国钓鱼码头廉价购得的冷冻蓝鳍金枪鱼运回东京，再高价出售。于是，蓝鳍金枪鱼作为美味佳肴的声誉渐响，到了90年代，它已成为这地球上猎杀率最高的鱼种之一。

蓝鳍金枪鱼受威胁

现今，蓝鳍金枪鱼是所有金枪鱼中最过度捕捞的。商业渔民会根据所要猎捕的蓝鳍金枪鱼种，从三种不同的捕捞方式，即：围网、延绳钓或曳绳钓选择最合适的捕捞法。围网用一张巨大的圆形网具包围金枪鱼，然后收紧网具底索。延绳钓是以一条很长（通常约几公里长）且间隔着饵钩的鱼线钓鱼。曳绳钓则是使用渔船拖曳装有钩、钓线的作业方式。

商业性渔业因蓝鳍金枪鱼的数量在过去20年里不断迅速下滑，使他们捕捉成年蓝鳍金枪鱼的过程越发艰巨。故此，渔农常将捕捞到的幼年蓝鳍金枪鱼放在渔场养殖，并不断以脂肪含量高的新鲜沙丁鱼喂养之，在它们达到合适的尺寸后将它们安乐死然后推出销售。这些在渔场养殖的金枪鱼同样备受重视，因其肥美的toro鱼肚肉质特具奶油般顺滑的口感。

日本有一群仍以鱼竿、鱼线，可持续性地一次只钓一只金枪鱼的小众渔民ippon zuri。为了维系这份传统，同时保育当地的金枪鱼类，日本政府特别划分出三个日本海域，专供全国200余名ippon zuri渔民使用。

保利博士表示，太平洋蓝鳍金枪鱼是三种蓝鳍金枪鱼中最受威胁的，至今只剩约5至10%的数量。他说：“它已踏上商业化牺牲品的道路。另一方面，我们也注意到人们对大西洋蓝鳍金枪鱼的需求开始下滑，次等金枪鱼类的需求则有上升趋势。”

随着蓝鳍金枪鱼的数量继续滑落，提升公众对其困境的认识似乎已不足以扭转局面。讽刺的是，这类的稀缺宣传反而会提高它的价格和声望，进而引发更大的需求。

贺尔邦博士认为金枪鱼已完全被消耗，短期内不太可能出现大幅增长。若我们真心关切蓝鳍金枪鱼的命运，就应适量食用它们。但他认为要迅速重建金枪鱼的数量，关键不只在减少需求，更多是要采取措施加以控制并遏止渔民过度捕捞。

有关当局已开始行动。例如，一项预防蓝鳍金枪鱼数量继续下滑的国际协议已收紧捕捞的配额。此外，日本最近也宣布，明年起将极力将这些捕捞自北太平洋的年轻金枪鱼的数量减半。



The signature Tuna Flight at 15 East in Manhattan comprises all the best parts of the bluefin tuna. At \$100 a plate, it is not for the budget-conscious. (Photo: Angela Hadl)

Is It Safe To Eat? 食得安心?

Contamination of the seas — but not the kind you are thinking of — is a major threat to tuna populations and our health

海洋污染不但对金枪鱼造成严重威胁，也大大影响着我们的健康。

TEXT SASHA GONZALES / 郭莎莎

In recent years, there has been a lot of concern about radioactivity and mercury contamination affecting tuna populations. But according to Daniel Pauly, professor of fisheries at the Fisheries Centre at The University of British Columbia in Vancouver, these are of little concern compared to problems like pollution.

“The oceans are full of little bits of degraded plastic that contain poisons like dioxin and PCBs (polychlorinated biphenyls). The plastic is consumed by small fish, which are consumed by tuna and which are then consumed by humans,” he explains. “This build-up of poison in the food chain is a far bigger problem than radioactivity from Fukushima,

which is a more localised issue.”

Chef Marco Moreira of New York restaurant 15 East says he is not too worried about radiation contamination with the fish he buys. “Right after the 2011 tsunami in Japan, it was of concern to us, but once the local authorities there had tested and cleared the fish and water for radioactive substances, we felt safe.”

As for mercury contamination, it is more of a threat to people who consume tuna in excessive amounts. Health advisories for tuna consumption differ from country to country, but in general, nutrition experts agree that eating the fish more than four times a week can endanger human health. So like everything else, tuna should be indulged in in moderation. ☺

近年来，人们开始关注辐射和水银污染是否会影影响金枪鱼类。温哥华英属哥伦比亚大学渔业中心的保利博士表示，这些担忧与海洋污染相比，可说是小巫见大巫。

他说：“海洋有很多细小的降解塑料，它们含有二恶英和PCBs（多氯联苯）等毒素。小鱼将这些塑料吞进肚，再被金枪鱼吞食，最后进入人体。像这类从食物中积聚的毒素比福岛县的辐射更为严重，因为后者只是发生在日本。”

位于纽约的15 East餐馆主厨Marco Moreira表示自己不太担心所买的鱼是否受辐射污染。“日本海啸之后，我们十分担心，但日本有关当局为鱼类和水源做完测试，并表明它们不含辐射物质后，我们就放心了。”

至于水银污染，除非你过量食用金枪鱼，否则它不太可能威胁你的生命。不同国家对食用金枪鱼的健康忠告都不一样，但营养专家普遍认为每周吃超过四次金枪鱼有可能危害人体健康。因此，品尝金枪鱼就和其他事物一样，应适可而止。



Carving up tuna is no easy feat, as the flesh is thick and meaty. (Photo: Getty Images)

Tuna Trivia

细数金枪鱼

TEXT SASHA GONZALES / 郭莎莎

- Sushi connoisseurs also refer to the bluefin tuna as the “black diamond” because of its scarcity.
- Tuna was so despised in Japan that in the 12th and 13th centuries, it was thought that eating it would bring bad luck.
- The bluefin tuna is warm-blooded – a rare trait among fish. This keeps its core muscles warm, so that it is able to make its way across vast oceans and swim to great depths.
- The Atlantic bluefin can swim at speeds of up to 80kmh. This is why it is known as the cheetah or the Porsche of the sea. In fact, the word tuna comes from a Greek word meaning “to rush”.
- Yellowfin tuna has a much shorter lifespan than the Bluefin – six or seven years compared to the bluefin’s 30.
- All species of tuna are nomadic, meaning that they do not spend their entire life in one place and are highly migratory.
- The largest tuna on record measured 6.4m in length and weighed 725kg.
- Bluefin tuna are known to put up a fight when caught. In the 19th century, they were loathed for tearing fishing nets and pulling many a fisherman into the water.
- Sharks and orcas are natural predators of tuna. Tuna themselves are carnivores, feeding on different types of fish, squid and crustaceans. 🐟
- 因为蓝鳍金枪鱼的稀缺，寿司行家把它称为“黑钻石”。
- 在12和13世纪的日本，金枪鱼被认为是一种不祥的食物，遭人唾弃。
- 蓝鳍金枪鱼是热血动物，这在鱼类中是很少见的，这使得它的核心肌群保持温暖，能在深海自由来去。
- 大西洋蓝鳍金枪鱼的泳速达每小时80公里，因此，它也被称为海中猎豹或保时捷。有趣的是，金枪鱼的英文词来自希腊文，意思是“赶快”。
- 黄鳍金枪鱼的寿命为六至七年，比蓝鳍金枪鱼的30年要短很多。
- 所有金枪鱼类都属于游牧族，这意味着它们不会一辈子生活在同一个地方，且具有高度洄游性。
- 目前有记录的最大金枪鱼长6.4米重725公斤。
- 蓝鳍金枪鱼是出了名的斗士。在19世纪时，常因撕裂渔网和把众多渔夫拉入海而倍受厌恶。
- 鲨鱼和虎鲸是金枪鱼的天敌。金枪鱼本身是肉食动物，以不同的鱼种、乌贼和甲壳类动物为食物。

Take It Home 把它带回家

A platter of fresh sashimi looks sumptuous on the party table. You can take home good sashimi from these local suppliers:

新鲜的生鱼片拼盘在派对餐桌额外令人垂涎三尺。你可从下列本地供应商购买到优质生鱼片：

➤ Sakuraya Fish Mart

(www.sakuraya.com.sg)

This Japanese company has three convenient locations around the island where you can pick up fresh sashimi.

这家日本公司在本地有三家地点便利的分店，让你轻松购买新鲜生鱼片。

➤ Oceans of Seafood

(oceansofseafood.com.sg)

Much of the seafood sold at this Pasarbella-based market is purchased directly from fishers and farmers around the globe.

这个欧式小资市场所销售的海鲜，直接购自世界各地的渔民和农民。

➤ Kuriya Japanese Fresh Fish Market

Kuriya 日本新鲜鱼市场

(www.kuriyafishmarket.com.sg)

The fish from Japan is air-flown into Singapore thrice weekly and sold immediately at the market.

每周三次从日本空运新鲜鱼类来新加坡，并立即在店面销售。

➤ Hokkaido Fish Market

北海道鱼市场

(www.hokkaidofishmarket.com)

Located in Novena Square, this fourth storey corner stall with a dine-in area sells fresh sashimi and sushi that you can take away.

位于 Novena Square 购物商场第四楼一角，备有小型餐饮区供食客当下品尝新鲜生鱼片和寿司，也可外卖。