



JFOODO

The Japan Food Product Overseas Promotion Center
Established by Japan government



THE FRESH HARMONY OF SEAFOOD AND SAKE

Why are seafood and sake such a good match?

Produced by



(E) BrandConnect, a commercial division of The Economist Group, which operates separately from the editorial staffs of *The Economist* and The Economist Intelligence Unit. Neither (E) BrandConnect nor its affiliates accept any responsibility or liability for reliance by any party on this content.



THE SCIENCE AND PASSION OF SEAFOOD AND SAKE

In Japan, sake is known as “the drink of the gods”. With its diverse flavour profiles and flexible serving temperature, Japan’s national beverage is increasingly rivalling wine on the global culinary stage. Once confined to Japanese menus, sake is becoming the drink of choice for lovers of fish and shellfish—and there is a scientific rationale for why the rice-made alcohol works so well with seafood.

Empirical epicureans: Why sake pairs with seafood

Whereas wine draws on the sugars contained in grapes for fermentation, sake is made with rice. Sake brewers use *koji* mould to help convert the rice starch into sugar, so that the yeast can munch up the sugar to create alcohol. The mould also breaks down the rice protein into amino acids, which play a pivotal role in enhancing the taste of seafood.

Umami, which literally means “savoury” in Japanese, is sometimes called the “fifth taste”, alongside sour, sweet, salty and bitter. Sake has two-to-five times more amino acids than wine, according to Dr Hitoshi Utsunomiya, the director of the Sake and Food Lab and sake expert at Japan’s National Research Institute of Brewing. And, in terms of sake’s facility in food matching, umami is a key element.

While white wine is seen as a traditional accompaniment for fish or seafood, finding the right one can be challenging. “You have to work hard to find pairings between wine and seafood,” says Harper. This is because wine grapes absorb iron from soil and some vintners use sulphites as preservatives, which can react badly with some fish and shellfish. “Iron and sulphur dioxide accelerate the oxidation of unsaturated fatty acids in richer seafood, which triggers fishy odours,” says Dr Utsunomiya. Wine is also much more acidic than sake and this can clash with some seafood.

In contrast, sake is 80% water, which adds to its purity, texture and “mouthfeel”. To ensure sake’s purity, any water used to wash, steep and steam the milled rice and for fermentation can only contain 0.02 parts per million (ppm) of iron—far less than the 0.3 ppm found in Japanese drinking water—or it is deemed unfit for use. “Too much iron taints the sake with a reddish-brown colour and spoils its aroma and flavour,” says Dr Utsunomiya.

As a result, sake has much lower levels of iron and sulphur

“Fruit-forward *ginjo* sakes pair well with lighter-fleshed shellfish such as crab and lobster.”

Eliot Faber, Sake Samurai,
IWC Sake judge and Decanter Asia Wine Awards judge

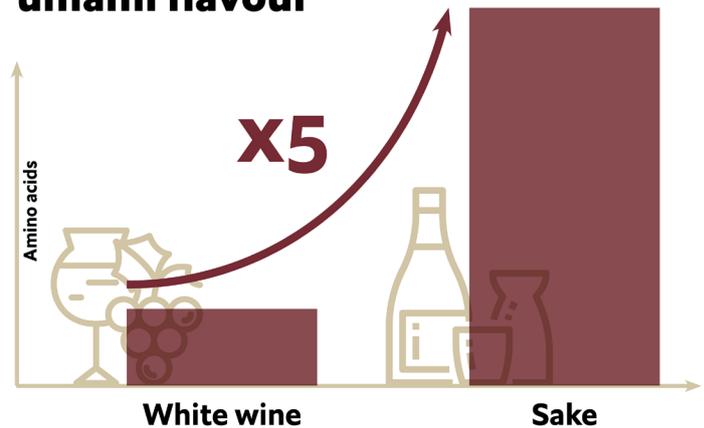
dioxide than wine, and contains no tannins. This makes it an ideal complement to practically any seafood dish. “Sake is so food-versatile because there is not much in it to react badly with any food,” says Antony Moss, a Master of Wine and director of strategic planning at the Wine and Spirit Education Trust.

Sake: Where technique meets taste

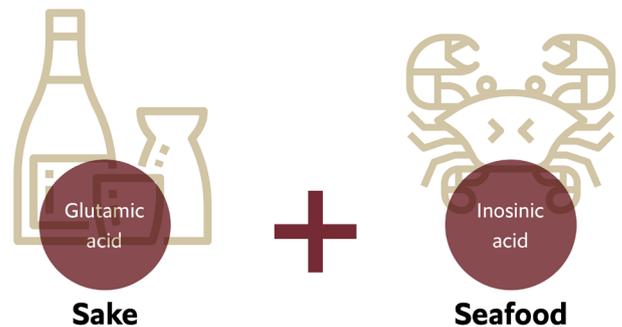
Over the past few decades, developments within the sake industry have allowed its producers to enhance their centuries-old craft with a deeper understanding of the science that underpins it. From revitalising ancient brewing methods to producing new and exciting yeast strains, sake creators are merging tradition and innovation. And to understand how and why sake complements seafood, it is essential to explore how the beverage is made.

Brewing sake requires meticulous craftsmanship. It is made from milled rice, water, yeast and *koji* mould. Its production begins after the Japanese rice harvest in autumn, with a typical cycle taking between five and seven weeks. According to Philip

Sake has five times more amino acids than white wine, which translates into more umami flavour

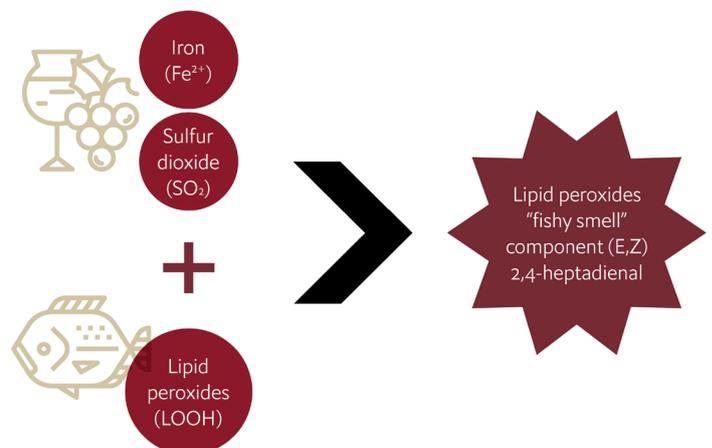


Japanese sake is, in fact, the best alcoholic beverage to enhance the taste of seafood



Did you know?

The iron and sulfur dioxide (an antioxidant) in white wine react with lipids in seafood and produce an unpleasant fishy smell.





“Sake is so food-versatile because there is not much in it to react badly with any food.”

Antony Moss,
a Master of Wine and director of strategic planning
at the Wine and Spirit Education Trust

shellfish or roe, sake brewers are exploring how to develop new varieties that better accentuate seafood’s many nuances and flavours. “Diversity has been created through different breweries pursuing different directions,” says Moss. This has resulted in the development of local rice varieties, including ancient strains such as Omachi rice from Okayama prefecture, and the exploration of alternative types of *koji* mould.

The expansion of sake styles has not gone unnoticed. Curious diners are realising that sake is the ideal drink for a range of global cuisines. “We have a real explosion in growth waiting to happen,” says Harper. Similarly, Faber argues that sake’s pure flavour profile, untainted by tannins or high levels of iron and sulphur dioxide, makes it a natural complement to practically any seafood dish. “Modern technology allows sake producers to control each step of the brewing process,” he says. “This means brewers can make a sake that has the optimal characteristics for matching with seafood.”

Harper, Japan’s first foreign-born master sake brewer, the most important part of making sake lies in the production process, rather than the ingredients. When it comes to winemaking, 80% of a wine’s quality is decided in the vineyard and 20% in the fermentation process, but with sake, the opposite is true. “Around 20% of sake’s production process depends on the quality of the rice,” he says. “The rest is how people manage the technical steps of making it in the brewery.”

First of all, brewers must polish away the outer husk of the *sakamai* rice grain—a special type of sake rice—to remove minerals, iron and proteins that affect sake’s aroma and taste. “Sake starts from a grain, but you do get fruity fragrances with certain styles of sake—they come from the brewing process, not the grain itself,” says Harper. When highly polished rice grains are fermented at lower temperatures with special aromatic yeast strains they produce a compound called an ester. Esters have

“Modern technology allows sake producers to control each step of the brewing process to make a sake that has the optimal characteristics for matching with seafood.”

Eliot Faber, Sake Samurai,
IWC Sake judge and Decanter Asia Wine Awards judge

unique aromas and are responsible for imbuing sake with flavour profiles of banana, apple or melon.

Eliot Faber, a Hong Kong-based Sake Samurai, IWC Sake judge and Decanter Asia Wine Awards judge, argues that fruit-forward *ginjo* sakes pair well with lighter-fleshed shellfish such as crab and lobster. Meanwhile, *koji* enzymes break down the proteins in less polished rice grains, creating more umami-laden sakes—perfect for drinking when eating a more oily fish like salmon.

Brewed in Japan, enjoyed by the world

Consistency and attention to detail run through the art and science of brewing sake. Today, sake makers respect their regional identities, but they are also leveraging science to advance brewing processes and create a range of styles, flavours and profiles. For example, as the natural drink to accompany fish,

Pure to the last drop



Water used to make sake is especially pure. Any water used in the sake-production process must contain no more than 0.02 ppm of iron, which is much lower than the levels of iron found in Japan’s tap water. Low iron levels means sake can be enjoyed with fatty fish like tuna, mackerel, herring and sardines, which are all high in healthy omega-3 fatty acids.

Go with the grain



Sake makers use a special strain of rice called *sakamai* (sake rice), which has more starch than normal table rice. The grains must be carefully polished to remove a layer of the outer husk that contains proteins, iron and minerals, which affect sake’s aroma and flavour.

Keep it natural



Wine grapes absorb iron from the soil and during the winemaking process, and vintners also use sulphites as preservatives. These elements can react badly with seafood. In contrast, sake brewers are prohibited from using sulphites, and any iron is filtered out of the water or removed when the brewers polish the rice grains.

Produced by

E BrandConnect

(E) BrandConnect, a commercial division of The Economist Group, which operates separately from the editorial staffs of *The Economist* and The Economist Intelligence Unit. Neither (E) BrandConnect nor its affiliates accept any responsibility or liability for reliance by any party on this content.

JFOODO



ESCAPE THE ORDINARY: How sake evolved to perfectly partner seafood

Sake is both a beverage and an expression of Japanese identity. It embodies craftsmanship, innovation and versatility. For the past 2,000 years, its creators have harnessed nature and science to craft a brew that has developed hand-in-hand with Japan's unique culinary traditions.

The driving force in the evolution of sake is its innate connection to Japan's land, waters and ocean. According to Elliot Faber, a Hong Kong-based sake sommelier and international wine and sake judge, sake brewers have always had a sense of terroir. The climate, soils, waters and terrain of Japan's diverse regions influence the taste and composition of the sake produced locally. And the natural complement to these elegant, complex brews was seafood.

As a drink, sake evolved alongside *washoku* (Japanese cuisine), which aims to bring out the best in the raw ingredients used to make it. "From a historical perspective, Japan has always been a seafood-focused country. Whether you're by the sea or in the mountains, sake and seafood are served all over Japan," says Faber. According to Master of Sake, John Gauntner, sake and seafood have a synergistic relationship, with each complementing and enhancing the flavour of the other. "Sake tends to pair easily with seafood because it draws out the umami and original nature of it," he says.

Into the new: Discovering the drink of Japan

It is unsurprising that the Japanese have always paired seafood with sake rather than wine. Now, as overseas exports of sake hit ¥22.2 billion (US\$200 million) in 2018, it is clear that global diners are increasingly discovering why Japan's national drink complements fish and shellfish so well.

The key to this popularity is sake's ability to bring out the natural flavours of seafood, while remaining non-reactive to potentially unpleasant odours. "Sake has more amino acids than wine, which means more umami flavour," according to Philip Harper, Japan's first foreign-born master sake brewer. As amino acids translate to savoury, umami flavours, it makes sake a natural pairing with umami-rich seafood dishes, ranging from Spanish classics like sardines stewed with tomatoes to an American staple like clam chowder.

Compared to wine, sake is also more chemically pure. "The



use of sulphites is not permitted in sake brewing, and sake also contains almost no iron," says Harper. The presence of iron and sulphites in wine can make it difficult to match with some seafood. "In contrast, the lack of these elements is the reason for sake's natural affinity with anything from the sea. People expect sake to go with seafood. It's actually more surprising to see a sake that doesn't match with it," he adds.

WHEN SAKE MET SEAFOOD

Elliot Faber is a Sake Samurai, IWC Sake judge and Decanter Asia Wine Awards judge, and beverage director at some of Hong Kong's most famous Japanese restaurants.

Here, he introduces some of his favourite pairings between sake and seafood.

Shrimp cocktail, served with tomato sauce, horseradish and lemon + Smooth and refreshing sake



The classic American starter is best prepared using succulent tiger prawns with a tangy tomato sauce, horseradish and a squeeze of lemon. The horseradish brings a bit of heat, and there's a rich umami element from the sweet-and-sour tomato sauce and the protein-rich shrimps.

Most people would traditionally pair this dish with a dry, full-bodied white wine, such as *arneis* from the Italian region of Piedmont. However, a smooth

and refreshing sake, like *junmai daiginjo*, which is pure with slight, fruity aromas, would better contrast with the flavour and coolness of a prawn cocktail.

The refreshing aspect of *junmai daiginjo* sake matches the zesty lemon and its smooth undertones enhance the weight and round flavour of the shrimp. This sake provides great balance and harmony, setting the stage for the variety of flavours in the shrimp cocktail to sing.

Nigiri salmon, sushi-grade Alaskan salmon over a mound of hand-pressed vinegared rice + Rich, full bodied sake

Nigiri salmon sushi is a richer style of food. The salmon has fatty acids and umami, which are enhanced further by the umami of the accompanying soy sauce. The vinegar in the rice also has a light zing to it.

This food would overpower the subtle flavours and aromas of a smooth and refreshing *junmai daiginjo* sake. However, a rich sake like a *junmai*, similar in character to a pinot gris from Alsace, stands up to the challenge.

Junmai sake brewers remove

less of the *sakamai* rice's outer layer during the milling process, allowing more amino acids, which provide the umami taste, to flourish during the fermentation process. This produces a creamier, umami-rich sake. The focus is more on the sake's body and texture, rather than the fruity or aromatic components, which would clash with the rice and the flavourful sushi. A rich *junmai* sake has the weight, mouthfeel and savoury element that brings out the natural umami of *nigiri* salmon sushi.



Ocean-trawled oysters, served raw and accompanied by lemon or a vinaigrette + Sparkling sake



Raw oysters have a natural brininess that comes straight from the ocean. A sparkling sake breaks up and supports the creamy flavour of the oysters, much in the same way that champagne does.

To create the ideal bubbles in a sparkling sake, rather than injecting it with carbon dioxide, the sake maker will deliberately close the cap on the bottle before the fermentation process has finished. This gives the sparkling

sake a natural feel and produces a beverage that is *usu nigori* (slightly cloudy) owing to the lees, which are deposits of yeast that occur as a by-product of the sake-making process.

A sparkling sake from the *junmai* class, which is made from rice with a slightly lower polish ratio, will give the sake more umami and savoury overtones. This will release the umami of the oysters, while the bubbles in the sake provide freshness too.

Coquilles Saint Jacques, French scallops grilled in garlic and butter under a breadcrumb gratin + Aged sake

Coquilles Saint Jacques is a luxurious French dish of baked scallops with a white wine sauce, coated with a crunchy layer of breadcrumbs. When it's grilled, the scallop takes on a smooth texture as it starts to caramelize. An aged sake, much like a chardonnay wine with its nutty undertones, enhances the sweetness of the scallops and complements the dish's umami flavour, while providing a foil to the batter.

The caramelised elements of the dish and the aged sake connect to accentuate the roundness and velvety quality of both the scallops and the beverage. The effect is a rich, rounded mouthfeel that has to be experienced to be believed.



Steamed Canadian lobster, simply served with clarified butter + Aromatic sake

Steamed lobster has a very pure, natural flavour that comes from its succulence and meatiness. An aromatic sake like a *ginjo* has a sweetness that comes from its fruity and floral aromas. If the sake is unpasteurised, you also gain a sense of its richness and liveliness, much like a flowery, acidic Riesling wine.

A sake on the bright, aromatic spectrum cuts through the

sweetness of the lobster, while its sweet flesh also complements the sake's elegant qualities. The natural umami taste in the lobster is also enhanced by the sake. There's real synaesthesia as you taste the juicy sweetness of the lobster, but sense the natural aroma profile of the sake. It's a synergy that brings out the best of both the lobster and the aromatic sake.



Japanese sake is the perfect alcoholic beverage to go with seafood because it...



Masks fishy odours

Sake contains very little iron and sulphur dioxide, which makes it non-reactive to the lipids in seafood, keeping out fishy odours.

Accentuates the umami

Sake contains five-times-more amino acids than white wine, which makes it richer in umami, and means it complement the natural umami in seafood.

Produced by

E BrandConnect

(E) BrandConnect, a commercial division of The Economist Group, which operates separately from the editorial staffs of *The Economist* and The Economist Intelligence Unit. Neither (E) BrandConnect nor its affiliates accept any responsibility or liability for reliance by any party on this content.

 **JFOODO**



YOUR 'HOW-TO' GUIDE TO SAKE

When John Gauntner first tasted sake, he was instantly hooked on its subtlety and depth. Dubbed the "sake evangelist" by industry insiders and a qualified "Master of Sake Tasting", Gauntner has spent the last 25 years as an advocate for this uniquely Japanese beverage. He has authored six books on sake and co-founded *Sake Today*, the world's first English-language magazine dedicated to the drink.

"My favourite sakes are the ones where you taste it, then sip it, and three seconds later you realise how good it is," he says.

Here, from what fish to serve with warm, and cold, sake to the correct sake-drinking etiquette at the dining table, Gauntner gives his advice on what every gourmand needs to become a sake connoisseur.

How to talk about sake

Anyone who drinks wine knows that it has its own language. Sake is the same. It has its own lexicon, which is rooted in the Japanese language. However, if you can talk knowledgeably about wine, you'll find the vocabulary overlaps with sake. "Almost anything you say about wine, you can say about sake," says Gauntner. "When wine people assess sake these days, they use much of the same terminology."

One way that sake does differ from wine is how it is classified. Sake classifications affect the drink's taste and price, and are based on the ingredients and rice-polishing ratios. Premium sakes are those made with highly polished rice and have lighter, more elegant flavour profiles that can recall hints of apple, banana or melon.

However, more polishing does not necessarily equate to better sake. "Those higher or lower grade assessments are just technical. If you like a sake, it is a good sake, no matter what grade it is," says Gauntner. "Lower grade sakes, where the beverage is made with less milled rice, tend to be richer and fuller."

"Did you know...?" A talking sake conversation starter:

Sake evolved differently in different areas of Japan—and the Japanese love of seafood plays a big role in why.

Unlike wine, a sake's profile and character depends much more on the production process than the ingredients. So sake makers around Japan would craft their sakes to complement their regional delicacies—especially seafood.

Brewers located near the coast naturally shaped their sakes to suit fresh fish. Others, situated in mountainous regions, developed richer, full-bodied sakes to complement cured or brined fish and shellfish. Crafting sakes to deliberately complement the local seafood created a unique culinary tradition that persists to this day.

How to choose a sake

For those unfamiliar with choosing a sake, Gauntner says diners should treat it like wine. He recommends looking for areas where sake can complement and contrast with seafood. "A good pairing will bring out aspects of the seafood that you didn't notice until the sake came into the picture and that will create a whole new experience," he says.

One thing to consider when choosing a sake is whether the brewers have added distilled alcohol during the production process, as this will change the flavour and profile.

"Anything without the word *junmai* there, be that *honjozo*, *ginjo* or *daiginjo*, has had some distilled alcohol added," says Gauntner. Sakes with distilled alcohol tend to be lighter, more aromatic and have a longer shelf life. An elegant sake in the *ginjo* style would pair well with lighter, white-fleshed seafood like lobster and crab.

In contrast, *junmai* types, which have not had any distilled alcohol added, are richer, fuller and more umami-laden drinks. These richer sakes, with more umami and body, really complement the umami-laden quality of scallops.

How to drink sake

Serving sake has its own ritual and pageantry, but there is no one way of drinking it. However, there are a few things you should



consider when selecting your glass.

The shape of a glass will change how a sake tastes. Gauntner advises that the glass's shape will affect where sake is distributed on the palate, which will amplify specific aromas.

For example, a narrow glass focuses sake on the tip of the tongue, bringing out the sake's sweetness. A broader glass sends sake to the sides of the mouth where acidity and tartness are sensed. A Riedel glass, made specifically for *daiginjo* sakes, focuses the aromas and distributes the sake in such a way that people experience more depth, expressiveness and umami in the sake, says Gauntner.

If you're eating a strongly flavoured dish, such as Singaporean chilli crab or a coconut and tamarind-flavoured Goan fish curry, then sake can also serve as a palate cleanser. "A sake with a dry finish or prominent acidity can cleanse the palate for the next dish," says Gauntner.

What to look for

When sampling sake, as with wine, diners should look out for appearance, aroma, taste and mouthfeel. Gauntner says perceiving a balance, whether it be between aromas and flavours or acidity and sweetness, is important.

"When you taste the sake, hold it on your palate and tongue before swallowing. If you gently exhale, you can still taste and smell different aspects of the sake even though it has gone," says Gauntner. Known as *modorika* (aromas that return), or "retronasal smells" in the wine world, these aromas are more easily noticeable in sake than in wine. "It's a fun thing to do with sake, with the four grades of *ginjo* premium sake tending to be more on the aromatic side than the other flavour profiles," adds Gauntner.

Hot or cold?

Sake can be drunk either chilled or heated, a practice which began in the ninth century when Japan's aristocracy warmed sake to entertain guests.

When considering what temperature to serve your sake, Gauntner recommends keeping three main ranges in mind. "Slightly chilled is a sake that is not right out of the fridge, but has sat outside for around 20 minutes, then there's room temperature, and gently warmed should be a bit warmer than our bodies," says Gauntner.

Any type of sake can be enjoyed across this range of temperatures. For example, a *ginjo* sake would become more expressive and sweeter at warmer temperatures than it is cold. Slightly warmed *ginjo* sake is perfect when served alongside a simple white-fleshed fish like cod or snapper. But, when chilled, it also pairs well with a summery, seafood salad or crab cakes with a lemon and dill sauce.

Sake etiquette

While wine-drinking comes with its own etiquette, Gauntner says that the key thing to remember with sake is that: "You don't pour it for yourself. Instead, pour for others and let them pour for you."

At the end of the day, he believes diners should go with their gut instincts. "It's all about enjoyment. If you like it, you're done."

The aromas of sake



Cereal

Certain types of sake, like *junmai*, are made from less-polished rice and boast grainy aromas that recall the rice they were made from.



Fruit

Sakes in the *ginjo* style are rich in fruity aromas that are called *ginjo ka*. These aromas evoke fruits, such as apples, pears, bananas and melon. Fruity *ginjo* sakes work well with white-fleshed crustaceans like Sri Lankan mud crabs or spiny lobsters.



Spice and nuts

Some long-aged sakes evoke aromas similar to clove, cinnamon and fenugreek, whereas others have hints of almond and walnut.

SPEAK SAKE:

A quick guide to terminology

Tan rei

Tan rei refers to a light-bodied sake that tastes clean and polished. It works really well with a flaky white-fleshed fish dish like baked cod.

Nou jun

Nou jun is a full-bodied sake with bold umami-laden flavours and mild acidity. Serve it with tuna pasta or salmon steaks.

Kire

Kire refers to a sake's finish, which should be clean and ephemeral. Unlike wine, long finishes are not highly valued in the sake world. The emphasis is placed on the taste, whether sweet or dry, leaving the mouth quickly.

Produced by

BrandConnect

(E) BrandConnect, a commercial division of The Economist Group, which operates separately from the editorial staffs of *The Economist* and The Economist Intelligence Unit. Neither (E) BrandConnect nor its affiliates accept any responsibility or liability for reliance by any party on this content.

JFOODO