

SINGAPORE'S SEAFOOD HERITAGE

LALA-LAND

EDITED
BY

ANTHONY D. MEDRANO



INCLUDES
23 SEAFOOD
RECIPES

SINGAPORE'S SEAFOOD HERITAGE

LALA-LAND

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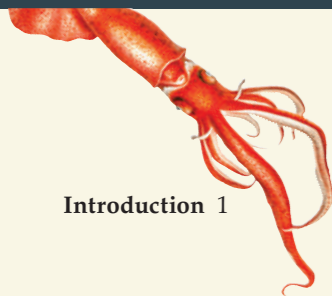
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INTRODUCTION

FROM EDIBLE OCEAN TO *LALA-LAND*

The sea has long shaped the Singapore story. From history to heritage, and from culture to ecology, it has marked (and left its mark on) the multiple ways in which this polyglot nation has been braided across islands, languages and generations. Today, the sea is everywhere. Common and familiar place names such as Telok Ayer, Pasir Ris, Pasir Panjang and Bedok echo the ocean's past. They harbour its memory, keeping the sea alive even when its waters and shores recede and grow distant with the passage of time and development.

But just as the ocean has grown distant from public view, it has likewise endured and evolved, growing more and more anchored at home in Singapore's foodways and fishways. *Lala-Land* is a collection of essays and recipes that charts this remarkable seafood heritage through stories of dishes, cultures, ecologies, histories and organisms. It does so in ways that are incisive and interdisciplinary, following what we eat to points far and wide, less known and rarely seen. Each story, too, is intentional, contributing to a rising swell of scholarship about the cultural richness of Southeast Asia's edible ocean as well as its strained capacity to provide and provision. Linking ocean to table, *Lala-Land* centres seafood and the worlds it conjures from the everydayness of ikan bilis to the placeness of laksa Siglap. It shows how the sea matters, and has always mattered, to Singapore's storied life.

At the same time, *Lala-Land* is a different kind of collection with a different kind of beginning. As a collection, it brings together the voices of young scholars, seasoned writers and passionate cooks. Whether story or recipe, each author flavours their contribution with perspective, expertise and a nuanced—even familial—understanding of the sea. In doing so, *Lala-Land* threads research and practice to share how stories and recipes can work together and the ways

in which both can enrich what we know about Singapore's seafood heritage.

As for its beginning, *Lala-Land* was borne out of a love for environmental teaching, experiential learning and community building. In 2020, I taught a module called "Asia's Edible Ocean" at Yale-NUS College that included NUS and Yale-NUS students. It was the early days of Covid-19, and questions about local food security and global supply chains were circulating in the news. Grounding the course in place, we explored the ways in which the edible ocean figured into the culture, history and ecology of Singapore's foodways and fishways. The sea was everywhere. We were fortunate too to have my dear colleague and collaborator, Martyn Low (Lee Kong Chian Natural History Museum), guide us on most adventures. In small groups, we met with local fishmongers such as Jeffrey Tan (Fish the Dish, Tiong Bahru Market) and learnt about how fish were caught and by whom, where they came from and what they were called in different vernaculars, and why some species (bronze croakers for their maw, ikan merah during Chinese New Year) were prized over others. We explored Kampung Glam with food and heritage scholar Khir Johari, learning about the ways in which ocean and ecology coalesced in the worlds of Nusantara. We connected with chef and author Pamela Chia, who shared with us her passion for stories and recipes, cultures and histories, markets and kopitiam. While a love for teaching and learning seeded *Lala-Land*, it has been the support and generosity of our shared community that has ultimately made this collection of essays and recipes possible.

My hope for the reader: to appreciate Singapore's seafood heritage through stories and recipes, and to reflect on what it means to eat big or small, farmed or wild marine organisms today.



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OCEAN



Chapter 1

BARRAMUNDI

Chapter 2

SKIPJACK TUNA

Chapter 3

PUFFERFISH

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STINGRAY

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WALKING CATFISH

Chapter 6

PRAWN

Chapter 7

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PACIFIC OYSTER

Chapter 9

SPANISH MACKEREL

Chapter 10

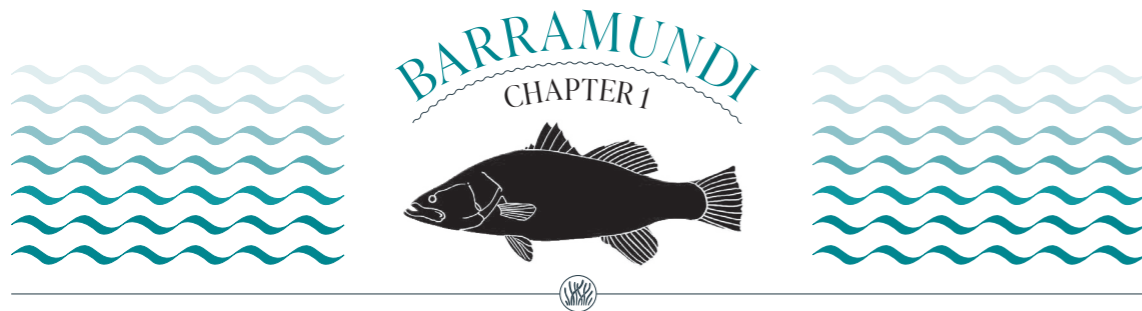
BLOOD COCKLE

Chapter 11

FISH MAW

Chapter 12

LALA



“The ecological, social and cultural importance of barramundi in Singapore.”

A FISH OF MANY NAMES

by
Lee Yun Ning

The barramundi goes by many names in Singapore. In Malay, it is known as ikan siakap and in Hokkien, kim bak lor (金目鲈). It is also often called Asian seabass or giant sea perch. Similar to the ways in which the barramundi transcends multiple languages, it also transcends various cuisines. It is a versatile fish that can be prepared in different forms, with different ingredients. From fancy Chinese restaurants to local Thai eateries, barramundi can be found on menus—pan-fried, steamed, baked, barbecued or breaded.

The recent “30 by 30” push towards food security in Singapore has boosted the popularity and promise of barramundi, with

the emergence of new technologies allowing for more productive cultivation of this fish in the island’s offshore waters. Considering barramundi’s growing importance, we might ask: what is the history of this fish, how has it figured within the diets of Singaporeans and what are the different contexts in which we consume it? It is to these questions that we now turn.

ONE FISH, MANY NAMES

The barramundi was first named *Holocentrus calcarifer* by the German naturalist Marcus Bloch, who obtained a specimen from Japanese waters.¹ This marked the first time the fish was named and illustrated scientifically.

In describing this specimen in the late eighteenth century, Bloch noted that its back, ventral and abdominal flaps were yellow, which faded to violet on both sides. Today, the barramundi’s appearance differs depending on the kind of water it inhabits. In freshwater, it has a greenish-blue upper body and dark brown to black tail fins, while in saltwater, this fish has a silver body and yellow fins.² Apart from the colour, some key features of the barramundi include its relatively flat and pointed head, concave forehead, large jaws and rounded caudal fin.³ These features make it one of the more noticeable fish in Singapore’s wet markets.

It was through wet markets that Europeans came to know this fish and its names. In the early nineteenth century, William Farquhar, the first British resident of Melaka, commissioned two Straits

Chinese artists to catalogue the useful plants and animals of the region. Their expertise resulted in a collection of 477 natural history drawings, including one of the earliest illustrations of the barramundi that had the inscription “ikan siakap”.⁴ A century later in 1921, C. N. Maxwell, the director of supplies in Malaya, photographed an ikan siakap specimen that he collected from Clyde Terrace Market and included it in his book, *Malayan Fishes*.

In addition, the Chinese name of the barramundi, jīn mù lú (金目鲈), literally translates to “golden-eyed bass”. This name is derived from the way the eyes of the fish glow at night, allowing us to infer that the barramundi would have been fished at night (perhaps in kelongs). Even this fish’s common name, barramundi, has a story. It means “big-scale fish” and comes from the



Aboriginal people of the Rockhampton area in Queensland, Australia.⁵

ONE FISH, MANY PLACES

As reflected in its diversity of names and languages, wild barramundi can be found across the Indo-Pacific region, ranging from the Persian Gulf to Australia and Japan.⁶ In Singapore, this fish can be found along the island's east coast, particularly among places where rivers proliferate such as Changi, Punggol, Pasir Ris and the north coast of Sembawang.

Rivers and estuaries are central to the barramundi's life cycle because it is a catadromous fish. As a catadromous fish, adult barramundi migrate from rivers to estuaries to spawn.⁷ A few months after spawning, the fry migrate from coastal waters and brackish estuaries to upriver habitats where they grow and age. Between ages five and six, adult barramundi return to the sea and estuary, where males transition to females that then spawn. These spawning cycles are shaped by the monsoons, too. It is interesting to note that barramundi generally stay within the same river system throughout their life, moving only short distances.⁸

Barramundi are at home in Singapore's waters. They spawn from November to January, with an average female laying between thirty million and forty million eggs, although more than ninety per cent of them die in the early stages of life.⁹ Wild barramundi fry can be found in mangroves and swamps, having been carried over by the tidal flow.¹⁰ This fish's eggs and larvae require a salty and sheltered environment to survive; mangroves serve as a good nursery for them to grow and mature. The juveniles readily feed on plankton, aquatic insects, small fish

and small crustaceans such as prawns, most of which are easily found among Singapore's mangrove forests. Barramundi are also demersal, often found near the bottom of the water column, allowing them to consume the macrocrustaceans that live at these depths while escaping from predators that hunt near the surface of the river, estuary or sea.¹¹ When lucky, barramundi can grow up to two hundred centimetres in length and sixty kilograms in weight, but are often found at sizes between twenty-five and a hundred centimetres.¹² According to one source from 1989, Singapore's wild-caught barramundi weighed about seven or eight kilograms.¹³

ONE FISH, MANY METHODS

Wild barramundi have long been prized as a food fish in Singapore's story. For its place in society, we can turn to the island's rich collection of local newspapers and oral history archives—both of which provide detail and evidence of human-barramundi interactions. For example, fishing hobbyists had specific knowledge on the conditions optimal for catching barramundi—the cold season from December to March made it difficult to secure these fish. Instead, one was advised to fish for barramundi from the twenty-fourth to the second day of each month of the lunar calendar, when the average estuarine level was between 1.3 and 1.6 metres.¹⁴ It was also encouraged that hobbyists fish for barramundi during dawn and evening times, especially when there was little difference between high and low tides. It was explained in one account that at low tide, small, young decapods and micro-organisms retreat from the upper estuary back to the seabed, while mullet remain in the estuary during low tide. Barramundi was expected to be found in

abundance during these times, as mullets are prey for the former.¹⁵

We also learnt how fishing hobbyists had specific tips for the type of bait and equipment needed to catch barramundi. Dead bait was not as effective as live bait; some commonly used baits included live prawns, squid and fish.¹⁶ It was advised, for example, that when one fishes for barramundi, they should allow the fish to “suck” at the bait and swim away with it before setting the hook. If one did not allow the fish to “suck” the bait, then the barramundi was known to “snatch” the bait violently, causing the rod tip to bend while subsequently spitting the bait back out.¹⁷

Like tips for bait, hobbyists also shared recommendations for what kinds of test lines, hooks and rods were best for landing this important food fish. In the 1980s, Singaporean anglers widely used a “monofilament trace of thirty to forty kilograms”, due to the sharp gill flaps of the barramundi.¹⁸ Other hobbyists relied on a setup that included an upper leader that held thirty-five to fifty kilograms, a branch leader of thirty centimetres and a metre-long lower leader. On hooks, one Chinese-language news article advised the use of a double or single hook method to fish, with the lower



“Barramundi was not only popular to catch, it was popular to eat (and farm) too.”

leader being able to withstand ten to twenty kilograms. The former method made use of a large front hook and smaller back hook. This same source highlighted the optimal position for casting one's line, this being ten to twenty yards from the shore, with the fishing line ideally landing where mullets were known to abound in Singapore's estuaries.

Among Singaporean anglers, barramundi was such a prized fish that a fishing competition was held in June 1984 on Sentosa Island. Many organisations were involved in its production, including Sentosa Development Agency, Shao Chang Pte. Ltd., Shimano, Shakespeare and the Crawford Community Centre Fishing Club. To facilitate the competition, sixty live barramundi were bought from a Changi fish farm for twelve dollars per kilogram and released into an artificial lake on Sentosa Island. The top three anglers who landed the heaviest barramundi won prizes ranging from two hundred to three hundred dollars.¹⁹ Barramundi was not only popular to catch, it was popular to eat (and farm) too.

ONE FISH, MANY FARMS

In Singapore, a crucial shift occurred in the farming of food fish in the 1980s. Matters

of land scarcity weighed on the island as it sought to provide ample, affordable housing to the public, and the idea of growing food fish offshore became not only attractive but also necessary. It was during this time that barramundi became a popular choice for estuary-based aquaculture. The reasons for farming barramundi were extensive: it had a closed life cycle with a fast growth rate, its flesh was of high quality and strong market value, and this fish's release of eggs was regular and innumerable.²⁰ In 1983, Singapore farmed a hundred tonnes of barramundi, which increased to 169 tonnes in 1985.²¹ This accounted for thirteen per cent of total aquaculture production in terms of quantity and twenty per cent in terms of value, amounting to S\$1.8 million.²² By 1990, 304 tonnes of barramundi were produced, accounting for 16.4 per cent of total fish farmed in Singapore.²³

In the 1980s, most barramundi farms produced their fish through the use of floating netcages. Many of these netcages were located near the Straits of Johor to "take advantage of the fast tidal movements (one to 1.5 knots) yet relatively deep (eight to ten metres) and sheltered (wave heights not exceeding a metre) conditions".²⁴ The mild waves ensured minimal strain on the frames and ropes of the netcages. Furthermore, the size of netcages determined the scale of farms.

But human-barramundi interactions extended beyond the world of netcages in Singapore. They also included interventions within this fish's reproductive cycle, from inducing spawning to producing fry. Singapore first successfully induced a barramundi to spawn in 1982. By 1985 a million fry were produced locally per annum, and as of 1995, there were three local

commercial hatcheries that grew the fry of this important food fish.²⁵ In 1987, it was discovered that barramundi could be raised from fingerlings to sexual maturity in floating netcages, and that they could spawn when given hormones.²⁶

ONE FISH, MANY DEVELOPMENTS

While security and resilience are still central to Singapore's food supply today, developments in science and aquaculture have made barramundi the fish of the future. Currently, Singapore's fish farms produce around ten per cent of Singapore's local fish consumption.²⁷

The Marine Aquaculture Centre (MAC) was built in 2003 at St John's Island, with one of the focuses being the cultivation of barramundi. Since 2003, MAC has developed genetically improved barramundi eggs, which have been produced and supplied to local and regional farms. In collaboration with the Temasek Life Sciences Lab, a breeding programme for barramundi using genomic tools was started, aiming to "improve its growth performance, disease resistance and meat quality".²⁸ This programme managed to increase the growth of the barramundi by over forty per cent and established a line of



“While security and resilience are still central to Singapore’s food supply today, developments in science and aquaculture have made barramundi the fish of the future.”

barramundi that had higher omega-3 content in its flesh. Additionally, MAC developed a production system for barramundi that is indoors and closed-loop, allowing for the production of barramundi with a smaller footprint, better control of diseases and minimal waste discharge. This led to a “ten-time improvement in Asian seabass fry survival and a hundred-time intensification over the prevalent outdoor pond system”.²⁹ These new advances in aquaculture have thus allowed for a more predictable and productive way of farming higher-quality barramundi while minimising environmental damage.

Along with these advances in Singapore's aquaculture sector has been the launch of Barramundi Asia, the only local company and farm operation that cultures barramundi in offshore netcages. The company produces a remarkable five hundred tonnes of barramundi annually, and one of its subsidiary companies, Uvaxx, develops autogenous vaccines for the fish.³⁰ Barramundi Asia also recently acquired Allegro Aqua, a start-up developed by the Temasek Life Sciences Lab to commercialise a line of barramundi that “can be bred in thirty per cent less time, is less susceptible to diseases and is more nutritious and tasty”.³¹ The company expects to produce thirty-six thousand tonnes of barramundi per year by 2032.³²

While recent developments in Singapore's

aquaculture industry have been game-changing, it is true, too, that barramundi have become even more popular as a farmable food fish. With new technologies allowing for more efficient production of better quality barramundi with a lower environmental footprint, one could say that the barramundi is significant for Singapore's food security and can be the sustainable fish of the future.

ONE FISH, MANY SPACES

New technologies have transformed the popularity and promise of barramundi; so, what do these changes mean for the consumption of this fish in Singapore? Violet Oon, a renowned Singaporean chef, commented that Singapore-farmed barramundi has a fine appearance, soft flesh and mild flavour, making it a popular choice for Euro-American cooking.³³ Indeed, Barramundi Asia's brand, Kühlbarra, has partnered with restaurants and hotels for its barramundi to be used in various Euro-American dishes. For example, Singapore-based Australian restaurant Salted and Hung uses Kühlbarra's barramundi in a dish featuring barramundi with clams in a prawn stock.

However, one might question the accessibility of sustainably farmed barramundi in the modern day. While a kilogram of barramundi from Kühlbarra costs around



fifty-three dollars,³⁴ the same fish (of unstated origin) can go as low as around fourteen dollars for the same weight in FairPrice.

Nevertheless, beyond the spaces of restaurants and banquets, Singapore's barramundi maintains a storied place within the island's home kitchen. To better appreciate this, we can turn to recipes from old newspapers and oral history archives. In 1981, for example, one author provided instructions for barbecuing barramundi at home, making use of common ingredients and herbs. In 1989, an article shared a recipe for a Malay-style curry using barramundi (ikan siakap) combined with commonly found herbs and spices.

WHAT DO WE MAKE OF THE BARRAMUNDI?

In 1981, a Chinese-language newspaper ran a Singaporean story titled "The Barramundi and Me".³⁵ Given the barramundi boom that would later wash over the island, the article was telling and timely. It elaborated on the

author's intense love for the barramundi. First, they explained that it could be easily cooked as compared to birds like chicken and duck, which required one to pluck out the hairs and feathers. In addition, barramundi could be stored for a long time without losing its taste or freshness, and it doesn't soften when boiled or fried. Most importantly, it is the perfect size for a family to finish. Building on this idea, the author shared a story of a doctor who prescribed barramundi to his mother after she suffered a significant amount of blood loss. Although this fish was difficult to catch, the author "waited silently for God to give [him] a chance to be a filial son". Eventually, he caught a barramundi and prepared it in a soup for his mother, who was cured after consuming the fish soup. These stories drawn from "The Barramundi and Me" speak to the intimate importance this fish has held in the hearts and minds of Singaporeans of the past.

As for barramundi's future in Singapore, that story remains to be written. Despite being one of the most farmed fish in the island's offshore waters, and the sustainability benefits that certain kinds of marine aquaculture make possible, the future of barramundi is unclear because of matters of price and exclusivity. Could barramundi really be the fish of Singapore's future with its hefty price tag? Perhaps prices will drop once Singapore's new farms scale up and recoup their initial costs. But for this storied fish to play a promising part in the island's food security, it needs to become more readily available and less exclusive.✿

"Singapore-farmed barramundi has a fine appearance, soft flesh and mild flavour, making it a popular choice for Euro-American cooking." –Violet Oon

Lee Yun Ning is an Environmental Studies graduate from Yale-NUS College. She currently works as an analyst in the climate philanthropy space.

Notes

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⁹ Aquarius, “Hard to Catch, Easy to Eat,” *The Straits Times*, January 18, 1986.

¹⁰ Aquarius, “Hard to Catch, Easy to Eat,” *The Straits Times*, January 18, 1986.

¹¹ Lucy Towers, “How to Farm Barramundi.” See also McGrouther, “Barramundi”; Australian Museum, “Barramundi, *Lates calcarifer*”; and Government of Western Australia, “Barramundi”.

¹² “*Lates calcarifer*,” Food and Agriculture.

¹³ 三平, “金目鲈的钓法 [Tactics for Catching the Barramundi],” 联合晚报, April 9, 1989.

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¹⁷ Aquarius, “Hard to Catch, Easy to Eat.”

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BARRAMUNDI IN CLEAR TOM YUM SOUP

Serves 4

Tom yum soup is often packed with seafood and has a fiery red colour from chilli paste, or a creamy orange hue, heavy with coconut milk. This lighter version features only barramundi and is no less flavourful, packing a spicy punch that belies its pallor.

INGREDIENTS

- 1L chicken stock
- 500ml water
- 2 lemongrass stalks, bruised
- 3cm galangal, peeled and thickly sliced
- 6 kaffir lime leaves, crushed
- 400g white mushrooms, cut into quarters
- 2 medium tomatoes, quartered
- 500g barramundi fillet, cut into 3-cm cubes
- 2 tbsp fish sauce (or to taste)
- 1-2 large limes, juice extracted
- 6-12 chilli padi (bird's-eye chilli), bashed until they split open
- ½ tsp sugar (optional)
- Large handful of cilantro, cut into 3-cm lengths

METHOD

1. Combine the chicken stock and water in a deep pot, then bring to a boil over medium-high heat.
2. Add the lemongrass, galangal, lime leaves and mushrooms and cook for about 5 minutes.
3. Reduce the heat to medium-low and add the tomatoes and barramundi, then simmer for 3 minutes or just until the fish is cooked through.
4. Combine the fish sauce, lime juice, chillies and sugar (if using) in a large serving bowl.
5. Transfer the hot soup to the serving bowl and stir gently. Garnish with the cilantro and serve immediately.

Denise Fletcher is the author of *Quickies: Morning, Noon and Night*, *Mum's Not Cooking* and *How to Cook Everything Singaporean*. She received formal culinary training at Shatec Institutes and has previously worked in SATS Catering, Quentin's the Eurasian Restaurant and Quentin's Bar and Restaurant.





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