

An overview of global lobster production and international trade: 2022 edition

July 2022



Western
**ROCK
LOBSTER**

World leading sustainable fishery



About us

Western Rock Lobster (WRL) is the peak body for the western rock lobster industry, representing the interests of commercial licence holders as well as the industry more broadly. WRL's mission is to support a confident, sustainable and well-respected western rock lobster industry. For more information about WRL, its objectives, and its activities, please visit the WRL website (www.westernrocklobster.org).

About this document

This report was prepared for the WRL Total Allowable Commercial Catch (TACC) Committee by Daniel Fels (WRL Economist). The report provides an overview of global lobster production and international trade, with a focus on the international customers and competitors for western rock lobster. It is intended that this report will support informed decision making within industry, as well as influencing future research priorities.

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WRL would also like to sincerely thank former WRL Market Analyst & Economist, Chris Price, who assisted in past iterations of this report.

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Executive summary

A broad range of lobster species support significant and high-value fisheries all around the world. Owing to their high market value as a sought-after food, lobster makes up a disproportionate share of the value of the world's seafood.

Global production of lobster is dominated in volume terms by American lobster, while spiny lobster is generally a higher value product (especially live). Spiny lobster production is also more widely dispersed and diverse.

Exports from Northern America dominate international markets and have increased with the rise in production of American lobster. Spiny lobster production and trade, meanwhile, is smaller and has not increased over time. In the case of Australian and New Zealand live rock lobster, long term and significant price premiums apply over live American lobster, and live spiny lobster of other origins, in the major export market: China.

Demographic factors and economic development have seen China emerge as a major destination for the international trade in lobster. China has accounted for much of the growth in international trade over the past decade or so, and accounts for a particularly large share of the global market for live spiny lobster. China is experiencing political tensions with trade partners, which has resulted in trade sanctions and other actions being implemented across a range of commodities from various nations.

A major potential competitor for live lobster from Australia and New Zealand appears to be Caribbean and Florida sourced spiny lobster, and Vietnamese and other Asian sourced tropical rock lobster. How quickly and significantly live supplies from these regions increase will depend on a range of factors including trade agreements, within-country processing, transport, infrastructure and regulatory constraints, as well as quality and species-specific issues. The opportunity afforded by the absence of Australian lobster from the Chinese market, owing to market access issues, continues to encourage developments in this space. Export trends of wild-caught Caribbean-sourced spiny lobster merit ongoing monitoring, as do developments in lobster aquaculture technology and husbandry in both Asia and the Americas.

The COVID-19 pandemic has brought considerable disruption to the global economy and uncertainty as to the future, and the lobster trade has not been unscathed. Volumes of western rock lobster exports recovered from the hiatus early in the pandemic, and beach prices also recovered. However further disruption to all Australian lobster exports occurred in late 2020, with a hiatus in the direct to China trade forcing a rapid shift to identify and develop alternative markets, both domestic and export. Australia's lobster export trade was supported by the International Freight Assistance Mechanism until June 2022, offsetting some of the increased freight costs associated with the pandemic.

Beach prices of Australian lobster will continue to reflect the volume and price points of alternative markets, combined with the increased supply chain costs associated with the pandemic and disruptions to the direct China market. Despite that future uncertainty, China is likely to be the earliest and fastest recovering economy from the pandemic. With caveats including the inherent unknowns of COVID-19 health policy, vaccine efficacy, a return to "non-pandemic" global economic conditions including normalisation of supply chain costs, and a warmer political relationship between Australia and China, the longer-term outlook for the lobster trade remains positive.

1.0 Introduction

This report provides an overview of global lobster production and international trade, with a focus on the international customers and competitors for western rock lobster. It is intended that this report will support informed decision making within industry, as well as influencing future research priorities.

The data and analysis underlying this report are being maintained by WRL, and it is intended that this report will be updated on an annual or biennial basis. This will provide opportunities to incorporate refinements as well as introducing topical issues as appropriate.

1.1 Content and structure of this report

The contents of this report have been based on a review of previous studies and existing resources,¹ insights uncovered through data analysis and through qualitative investigation, and knowledge contributed by industry participants.

There is an emphasis within the body of this report on identifying themes and developing ideas, rather than providing a comprehensive, data-based profile of global lobster production and international trade. Readers with a specific interest in detailed statistical information may wish to refer to the appendix.

The remainder of this introductory chapter clarifies the scope of analysis. Thereinafter, dedicated chapters provide, in turn:

- an overview of global lobster production;
- a summary of international trade in lobster;
- a profile of rock lobster in Australia and New Zealand;
- information regarding the ongoing coronavirus (COVID-19) pandemic and its impact on the western rock lobster industry; and,
- information regarding recent developments in trade with China, resultant changes in trade flows, and an introduction to some alternative markets for western rock lobster.

1.2 Scope of analysis

1.2.1 Types of lobster

The scope of this report is framed with an emphasis on global economic relevance rather than taxonomical completeness or consistency. In general, the focus is on two commercially-significant lobster groupings:

- **Homarid lobsters (hereinafter generally referred to as clawed lobster or as American/European lobster)**, being lobster of the *Homarus* genus within the *Nephropidae* family. The only two extant species of homarid lobster are *H. americanus* (American lobster) and *H. gammarus* (European lobster).²
- **Spiny lobsters (sometimes also referred to as rock lobster)**, being lobster of various genera within the *Palinuridae* family. Global production of spiny lobster is more widely dispersed and more diverse than is the case for clawed lobster.

Homarid lobster and spiny lobster together account for around 80 per cent of global production reported for all species falling within the definition of lobster under the International Standard Statistical Classification of

¹ This report is intended for industry stakeholders rather than an academic audience, and so the academic standard for referencing has not been observed. A list of selected resources may be able to be provided on request.

² *Homarus* spp. once also included Cape lobster (*H. capensis*) but this is now considered to form a separate, monotypic genus (*Homarinus*).

Aquatic Animals and Plants. The overwhelming majority of what remains is accounted for by Norway lobster (*Nephrops norvegicus*) - often referred to as scampi (along with the closely-related *Metanephrops* spp.), these are true lobsters in the sense that they are members of the *Nephropidae* family. However, Norway lobster and other scampi are typically considered as being in a separate market category to that of American/European lobster or spiny lobster. Certainly, Norway lobster does not directly compete on international markets with a premium product such as western rock lobster. By a similar rationale, the scope of this report also excludes other species within the *Nephropidae* family, slipper/fan lobster and bugs of the *Scyllaridae* family, and assorted other minor species of various genera and families.

1.2.1 Economic scope

The focus of this report is on commercial fishing and international markets. Future work as part of the 'Understanding the Markets for Western Rock Lobster' initiative will extend the analysis to consider the whole of the value chain. Note that any lobster being traded internationally is likely to have been caught as part of a commercial enterprise but also that it is not always possible to clearly demarcate commercial and non-commercial production. This is especially so when it comes to cases of artisanal, small-scale fisheries and subsistence production.

1.2.2 Timeliness

As a practical matter, this report generally considers the latest available period for which relevant data are available (as well as any significant trends of recent years). Obviously, the availability lag for 'official' statistics can be considerable, especially when it comes to globally-comprehensive datasets collated by international organisations.³ For certain cases within this report, data are presented for selected countries (sourced directly from the relevant national agencies) even though comprehensive global statistics are not yet available for the same period. Further, this report includes some even more timely information, based on anecdotal evidence from market sources.

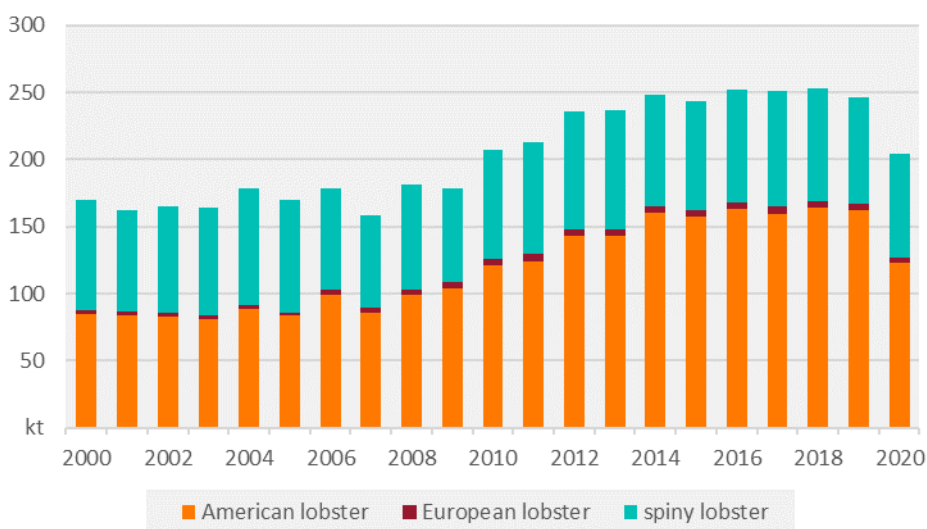
³ For example, consider that comprehensive global production data for 2021 are not expected to be published by the FAO (the Food and Agriculture Organization of the United Nations) until later this year.

2.0 Overview of global production

2.1 Global production is dominated by American lobster

Global production of lobster is dominated by catches of American lobster (*Homarus americanus*) along the Atlantic coast of Canada and the north-east of the United States. This relatively small area accounts for more than 60 per cent of the global production of lobster and has accounted for essentially all of the observed growth in such over an extended period of time.

Figure 1: Global lobster production by type, 2000–2020



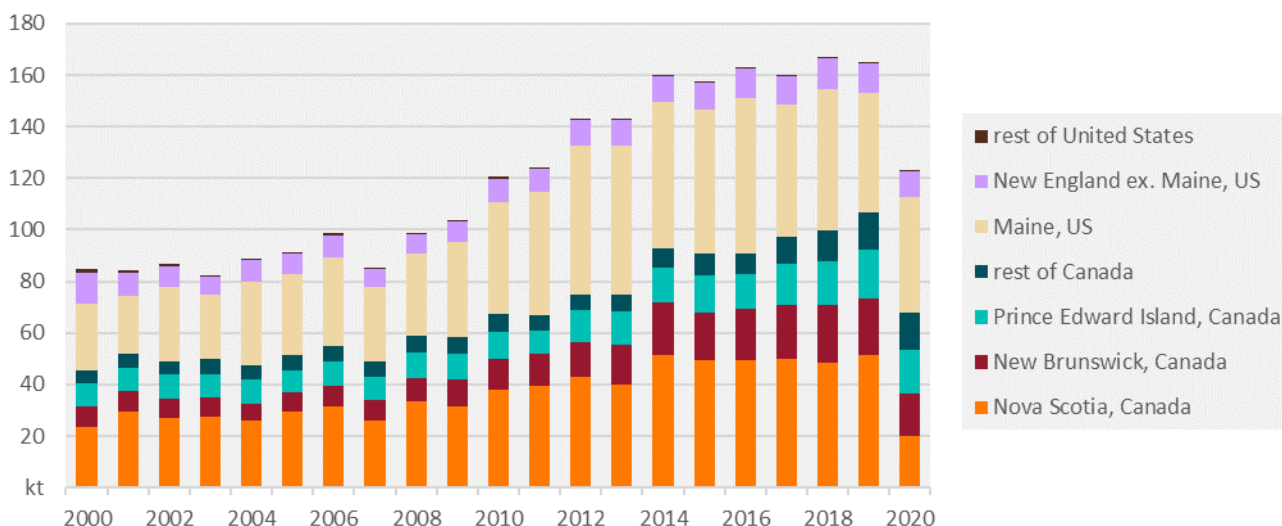
Source: FAO FishStatJ

Canada accounts for over half of the American lobster catch, with the largest lobster populations found around Nova Scotia and the southern Gulf of Saint Lawrence. For the US, lobster abundance decreases from north to south, with almost all of the catch attributable to Maine and the rest of the New England region. However, landings have been recorded as far south as North Carolina. The commercial fishing of American lobster is almost entirely through the use of baited traps, though trawling has been demonstrated to be commercially feasible (especially in southern parts of the range of the species).

2.1.1 The historical increase in catch will be reversed in the coming years or decades

The significant increase in the American lobster catch during the late-2000s and early-2010s was attributable to a combination of factors. The collapse of groundfish stocks (particularly cod) in the 1990s provided the potential for a gradual increase in lobster biomass, while more recent warming of waters in the Gulf of Maine has bolstered populations throughout much of the fishery (even as the same phenomenon has led to more disease and lower populations for southern New England and Long Island Sound). However, the continued warming of waters over the coming years and decades is expected to result in significant declines in American lobster populations.

Figure 2: American lobster production in Canada and United States, by region, 2000–2020



Sources: Fisheries and Oceans Canada; US National Oceanic and Atmospheric Administration

2.1.2 American lobster is generally available year-round

Differences in the timing of catches throughout its range support the year-round availability of American lobster. Canada generally prohibits lobster fishing between July and September, and catches usually peak in December and again during April–June. In contrast, the US allows year-round fishing in the major fishing areas but catches are generally low during the winter and spring followed by an abrupt shift into a period of high landings in early summer. The existence of lobster holding pounds further supports the year-round availability of live American lobster, with hard shell lobster able to be held for considerable periods of time.

2.2 European lobster contributes relatively little to global production

European lobster (*Homarus gammarus*) is the other extant species of clawed lobster. It is substitutable with American lobster to a considerable degree, through European lobster is usually at a significant price premium (especially within Europe). This price premium is attractive enough to spur re-seeding efforts and the development of aquaculture systems capable of commercially cultivating the species.

In contrast to the globally-dominant position of American lobster, European lobster accounts for just 2 per cent of global lobster production, and relatively little of this finds its way to markets outside of the general region of production.

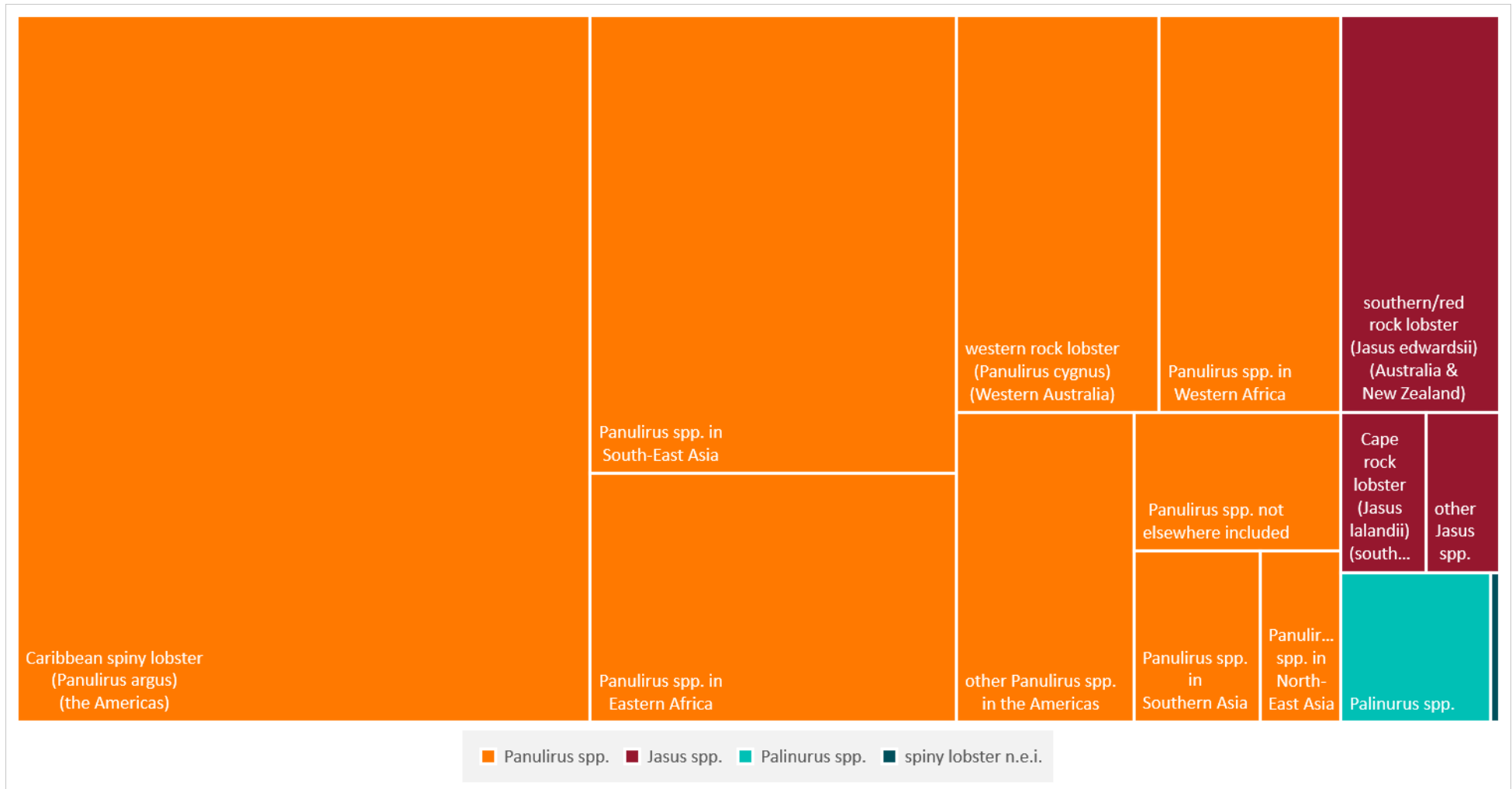
The range for European lobster extends along coastlines of the north-eastern Atlantic, from north-western Norway, south to the Azores and the Atlantic coast of Morocco, and also includes parts of the Mediterranean and the Black Sea. However, the majority of the commercial catch is attributable to the United Kingdom, Ireland, and France.

2.3 Spiny lobster production is widely dispersed and diverse

While most of the respective catches of American and European lobster are relatively concentrated geographically (particularly in the case of American lobster), spiny lobster production is much more widely dispersed, occurring in many tropical, sub-tropical and temperate seas around the world. There is considerably greater biological, environmental and technological diversity among spiny lobster fisheries than is the case with the clawed lobster fisheries.

Caribbean spiny lobster (*Panulirus argus*) is easily the most commercially-significant species of spiny lobster by volume, though there are many other species of importance. These include western rock lobster (*Panulirus cygnus*) along the coast of Western Australia, and southern/red rock lobster (*Jasus edwardsii*) off south-eastern Australia as well as New Zealand. There is also substantial spiny lobster production through much of South-East Asia (e.g. *Panulirus ornatus*, *Panulirus homarus*) and along various parts of the coastline of Sub-Saharan Africa.

Figure 3: Global production volume of spiny lobster by type and/or region, 2020



Source: FAO FishStatJ

2.3.1 *Panulirus argus* is the most commercially significant spiny lobster species

Caribbean spiny lobster (*Panulirus argus*) is fished practically throughout its range, which extends well beyond the Caribbean region—including the entire Gulf of Mexico and the Caribbean Sea, and extending as far north as Bermuda and the east coast of the United States at North Carolina, and along the South American coast to Rio de Janeiro, Brazil. Caribbean spiny lobster accounts for more than 40 per cent of global spiny lobster production and around 90 per cent of spiny lobster production within the Americas.⁴

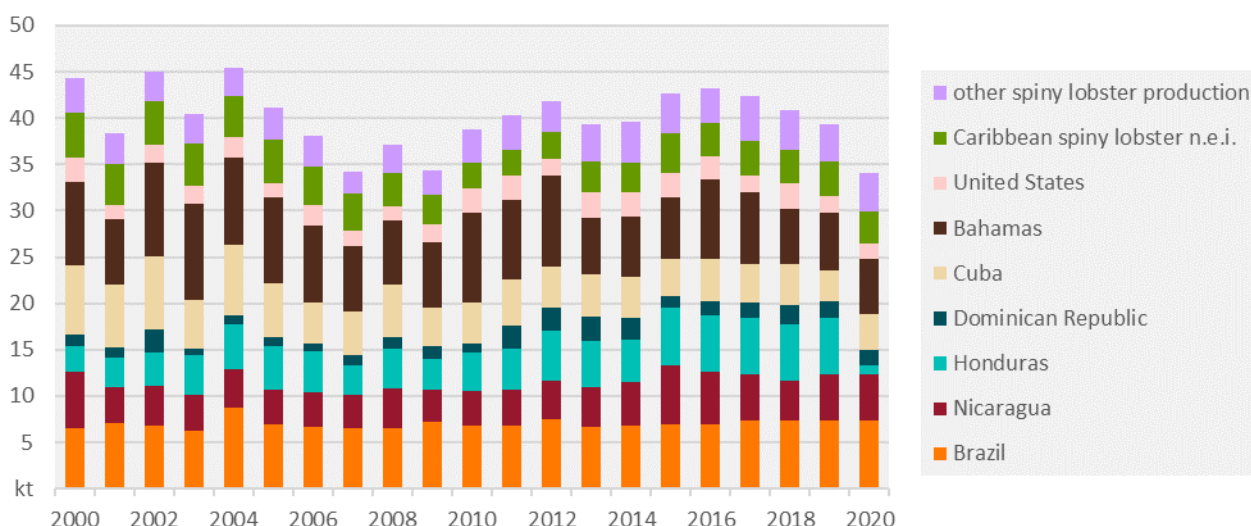
The main producing countries of Caribbean spiny lobster are Brazil, Cuba and Bahamas. The Caribbean lobster fisheries are generally artisanal or small-scale, with the exception of Honduras, Nicaragua and Cuba, where the fisheries are mainly industrial. Globally, there are an estimated total of 60 000 professional fishers in addition to over 100 000 recreational fishers. In some areas, the lobster fisheries are the key economic livelihood of communities in the Caribbean, who have no other means of subsistence. The average production per year of lobster per commercial fisher in this part of the world is as low as 500 kg per year.

Figure 4: Distribution of Caribbean spiny lobster



Source: FAO Aquatic Species Distribution Map Viewer

Figure 5: Caribbean spiny lobster production by country, and production of other spiny lobster in the Americas, 2000–2020



Source: FAO FishStatJ

2.3.2 The business of fishing Caribbean lobster varies widely

⁴ The sub-tropical waters of the Eastern Central Pacific account for most of the remaining production. California spiny lobster (*Panulirus interruptus*) is particularly significant, although blue spiny lobster (*Panulirus inflatus*) and other species are also fished on a commercial basis.

As is the case with clawed lobster, many species of spiny lobster are commercially caught through the use of baited traps. However, some of the tropical species are taken by diving or by use of artificial shelters (sometimes referred to as 'casitas') which are used to concentrate the lobsters typically living in shallow seagrass habitats. Nets are used to take the lobsters sheltering under casitas, when they are lifted or disturbed and the lobsters leave their shelter. Spiny lobster species are also taken by trammel netting and sometime as trawl bycatch.

Note that the method of capture will reflect a confluence of biological, environmental and economic factors, which in turn affect the economics of fishing; and together with the supply chain affect the potential international competitiveness of lobster from a particular fishery. These fisheries range from artisanal or small-scale fisheries, with labour-intensive fishing, sometimes on a subsistence basis, to fisheries that are operated on a very much commercial and industrial basis.

2.4 A note regarding Marine Stewardship Council (MSC) certification

The MSC is the world's most respected independent fisheries sustainability certification standard, which reviews fisheries based on stock assessment and harvest strategy, the impact of the fishery on the wider ecology, and management and consultation arrangements. Third-party accreditation can be an important point of differentiation in international markets.

The major American lobster fisheries have been MSC certified, however, the Gulf of Maine lobster fishery recently had its MSC certification suspended for a period until being reinstated effective September 2021. (The MSC had determined that the fishery was potentially jeopardizing the survival of the critically-endangered North Atlantic right whale).

Relatively little of the global production of spiny lobster production comes from fisheries that have been MSC certified. The western rock lobster fishery was the first fishery in the world to achieve MSC certification, in 2000, and has maintained the certification through periodic reviews since. Other significant spiny lobster fisheries to achieve MSC certification include the California spiny lobster fishery of Mexico Baja California (2004) and the Caribbean spiny lobster fishery of the Bahamas (2018).

2.5 Aquaculture is presently only a minor part of global production but will grow

Aquaculture production is estimated to account for less than 1 per cent of global lobster production, and a bit over 2 per cent of global spiny lobster production. Unlike many other crustacean groups there is little aquaculture production of spiny lobster due to their typically long and complex larval stages. While the life cycle for many lobster species has been closed, most aquaculture production is currently from near-shore sea cage grow-out of wild-caught juveniles of tropical species, mostly *Panulirus ornatus* and *P. homarus*, in Vietnam and Indonesia. In these cage systems, a 5cm juvenile takes 18-24 months to grow out to a 1kg harvest sized animal. If or when breeding and hatchery technology advances to the point of being able to supply large quantities of healthy juveniles, these industries can be expected to grow rapidly.

China import data indicates that the Vietnamese ranch industry may be of a significantly larger scale than previously estimated. Recent trade data shows that imports of live spiny lobster into China from Vietnam reached high levels in 2020, and in early 2022, which may indicate that the aquaculture industry is indeed generating significant volumes of high-quality product.

There is pilot scale aquaculture production of the European lobster, *Homarus gammarus*, in northern Europe; based on Recirculating Aquaculture System technology. Growth to 250gram plate-size animals takes around 24 months, and requires individual cages owing to the species' cannibalistic tendencies. Proponents of this technology suggest that production could reach 1000 tonnes per year by 2027.

Closer to home, the Tasmanian-based company Ornatas has developed technology closing the life-cycle for tropical rock lobster, *Panulirus ornatus*. This species has a relatively short larval cycle duration compared to other rock lobster, a quick growth rate to market size, and high-value export markets. The company plans to commercialise tropical rock lobster aquaculture in Australia with a breeding program located in Tasmania; hatchery and nursery phases in northern Queensland; and grow-out trials in ponds at a former prawn farm, and in sea cages in the Kimberley. The company suggests that the Australian farmed industry could eventually produce 1000 tonnes annually.

3.0 Summary of international trade

3.1 Patterns of trade in part reflect seasonal availability and logistical considerations

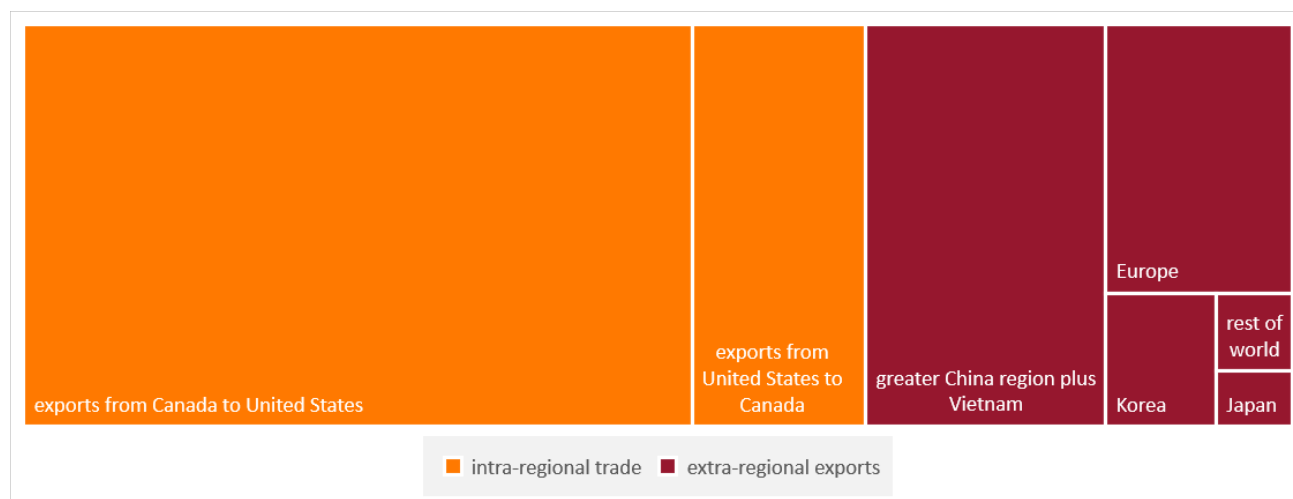
Seasonal availability and market demand, and logistical constraints inform the observed patterns of trade, particularly for exporting countries such as Australia which focus heavily on the trade in live lobster. Lobsters can be kept alive, out of water, in a high humidity environment for well over 24 hours (depending on the species and the method of export packing & handling). Current experience is that once handling and transport time increases beyond 24 hours, the mortality risk increases and can increase significantly as this time increases. However, ongoing R&D means that transport protocols continue to evolve and improve, so this “safe” time horizon continues to extend. Countries/producers with better management and production systems and access to reliable transport and processing systems to manage exports/imports are best placed to deliver live product to export markets in good condition. These factors impact the pattern of global trade as presented below. Caribbean lobster producers are most notably affected by some of these issues. Depending on their locations they have access to advanced transport systems out of the US (Florida) or are restricted to shipping frozen lobster due to a lack of suitable handling and air freight options.

3.2 Canada and the US are the most significant exporters (including for extra-regional trade)

3.2.1 Much of the trade is intra-regional...

Given the global dominance of American lobster production, it is not surprising that Canada and the United States are far and away the largest exporters of lobster in the world. However, a significant proportion of their respective exports are imports into the other (rather than exports to destinations outside of the region). This pattern of trade reflects the significant size and preferences of the respective domestic markets, as well as certain seasonal and logistical factors. In gross terms, the United States and Canada are the largest and third largest importers of lobster in the world but relatively little of this lobster comes from outside of the two countries.

Figure 6: Intra-regional trade and extra-regional exports, by value, Canada and United States combined, 2021

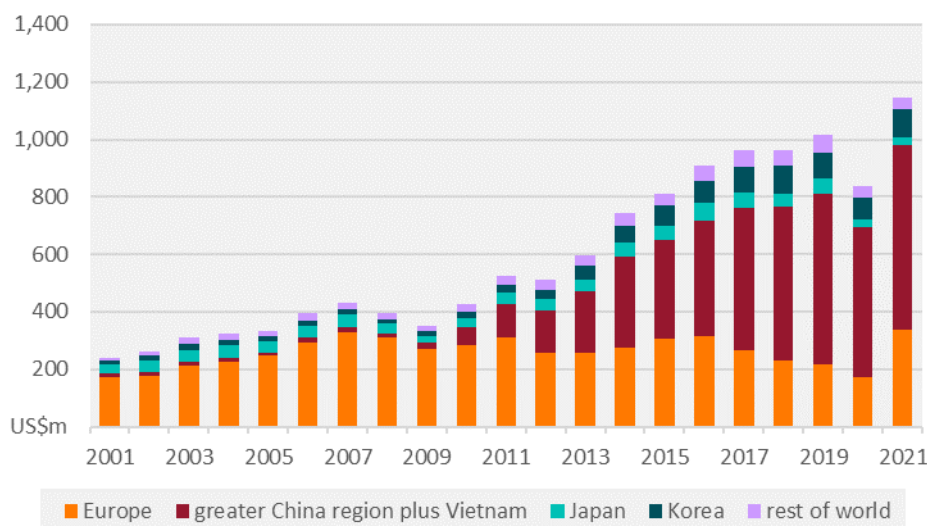


Source: UN Comtrade

3.2.2 ...but extra-regional exports from Northern America still dominate international markets and have increased with the rise in production

Even excluding intra-regional trade, Northern America is still the world's main origin for the international trade in lobster. Extra-regional exports increased as production increased during late-2000s and early-2010s, with greater exports to China being of particular note. Other major destinations include the rest of North-East Asia as well as Europe.

Figure 7: Extra-regional exports from Canada and United States combined, by destination, 2001–2021



Source: UN Comtrade

3.3 Europe is a minor producer and net importer of lobster

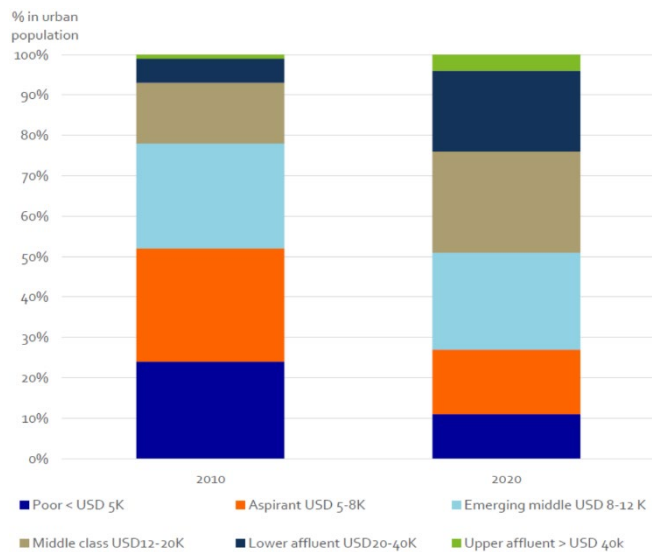
Relatively little European lobster production finds its way to markets outside of the general region of production. That having been said, there is considerable international trade in such within Europe. Lobster supplies in Europe are bolstered by significant large volumes of imports of American lobster and spiny lobster. Since the entry into force, in late-2017, of the Comprehensive Economic and Trade Agreement between Canada and Europe, most of the American lobster imports have been from Canada rather than the United States.

3.4 China is the major destination for extra-regional trade

3.4.1 Demographic factors and economic development have driven an increase in demand

As urban populations and incomes rise, China has emerged as the major destination for the international trade in live lobster over the last decade. Chinese consumers, particularly the relatively affluent urban on the east coast regard live, imported seafood as luxury social symbols. This size of this demographic is increasing rapidly.

Figure 8: China urban population by income group, 2010 and 2020

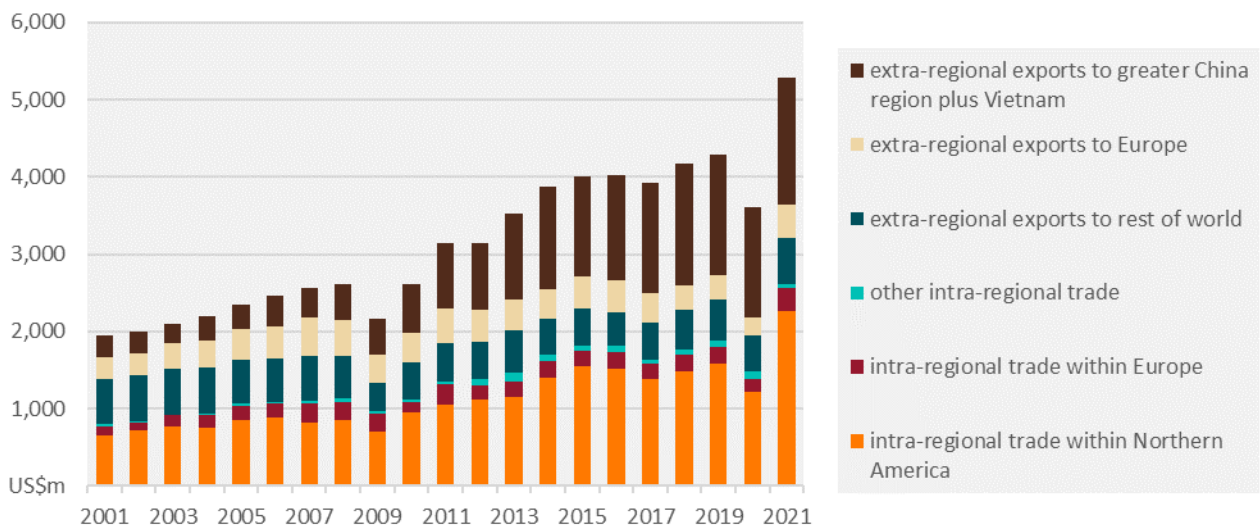


Source: Nikolik 2019

3.4.2 China has accounted for most of the growth in the international trade in lobster over the past decade

Demand in China has accounted for most of the growth in the international trade in lobster over the past decade. The prominence of China is particularly obvious if excluding intra-regional trade (e.g. the trade in American lobster between Canada and the United States). China's market dominance is even more notable with specific regard to the international trade in live spiny lobster.

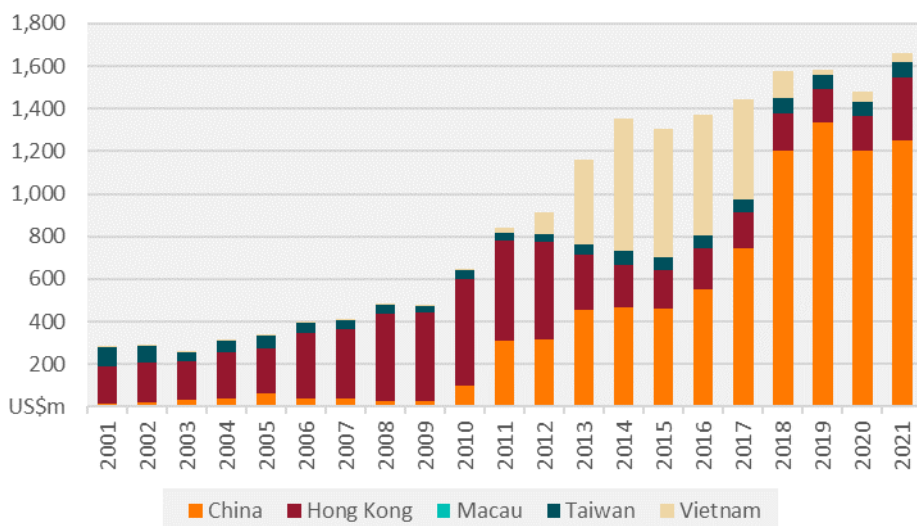
Figure 9: Intra-regional trade and extra-regional exports, by value, 2001–2021



Source: ABS; GACC; ITC Trade Map; Stats NZ; UN Comtrade

The implementation of preferential trade agreements with major trading partners (including New Zealand and Australia) has seen an increase in direct trade with China (and a decline in the so called 'grey' trade through Vietnam, Hong Kong and potentially other jurisdictions).

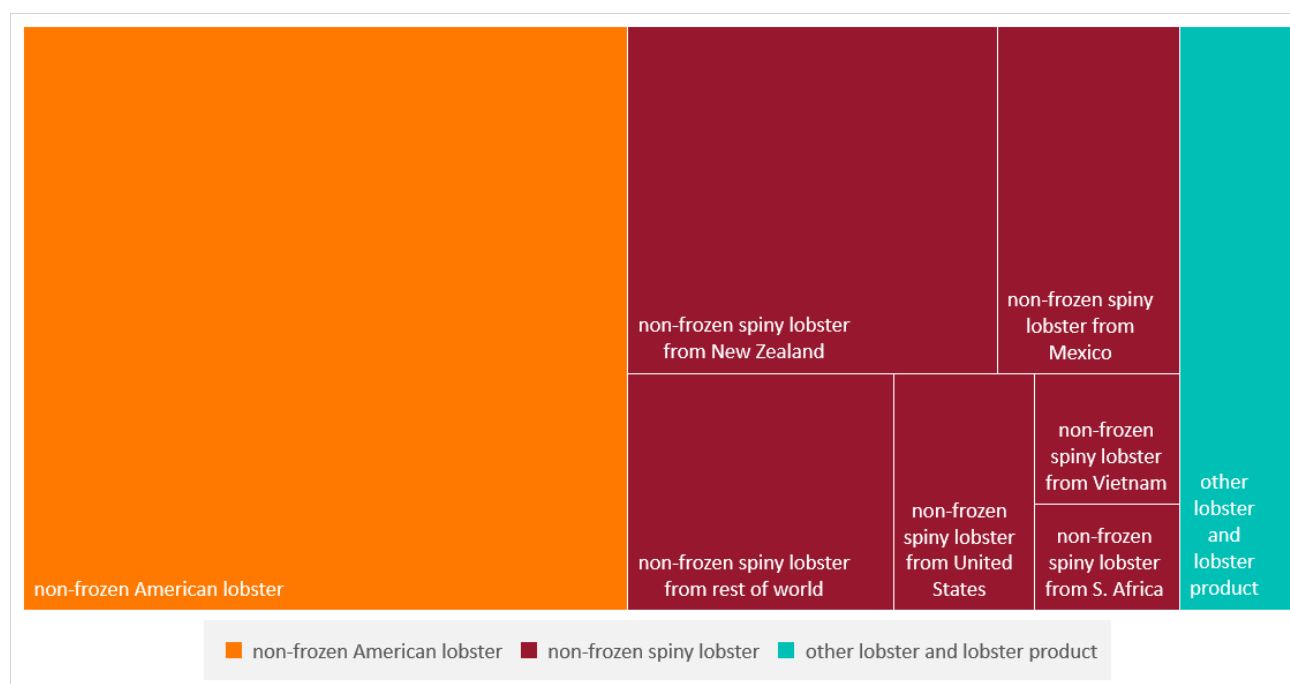
Figure 10: Lobster exports from any origin to the greater China region plus Vietnam, 2001–2021



Source: GACC; UN Comtrade; WRL analysis

The Chinese market shows a strong cultural preference for live lobster rather than frozen.

Figure 11: China imports of lobster, value by product type and origin, 2021



Source: GACC

3.4.3 The China market is really many markets

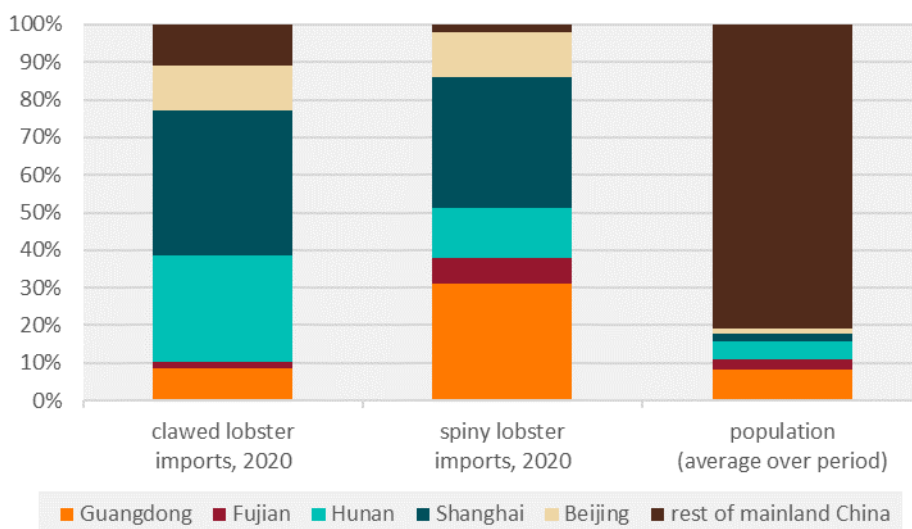
China is the market of choice for live/fresh/chilled spiny lobster because it is the largest and highest-paying option. That is not to suggest, however, that China is a single, homogenous market - China is in fact a collection of peoples with considerable cultural and economic diversity. Regarding the demand for lobster, there may be differing preferences in respect of price point, size, appearance, taste, cooking style, packaging, and origin.

Chinese demand for seafood has historically come from the coastal regions of the country. Western rock lobster has traditionally flowed into China via the southern borders with Hong Kong and Vietnam, and in turn the market for western rock lobster has been centred around the south-eastern region of China—particularly the provinces of Guangdong and Fujian. Other major centres of demand for imported lobster are the

municipalities of Beijing and Shanghai, though traditionally these have been more oriented towards other spiny lobster species (e.g. southern/red rock lobster).

Growing wealth in inland cities and supply chain improvements are gradually resulting in increased demand for seafood in those regions.

Figure 12: Value of clawed and spiny lobster imports for China, and population, by administrative division, 2021



Notes: Note that location data are based on the place of registration of the consignee, rather than customs point of entry or the final destination. Data do not include Hong Kong or Macau.

Source: China NBS; GACC

Figure 13: Map of China with administrative divisions



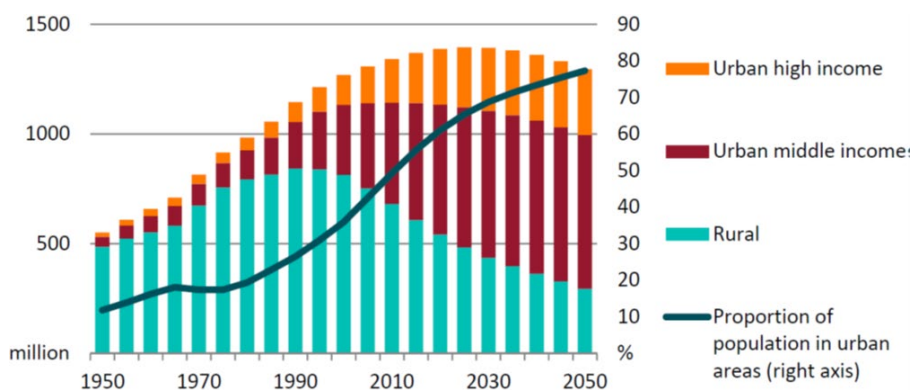
Source: Wikipedia (https://en.wikipedia.org/wiki/Administrative_divisions_of_China)

3.4.4 The long-term outlook for demand in China is generally positive, structural challenges notwithstanding

The long-term outlook for lobster demand in China is generally positive, despite some structural challenges that lay ahead. It is expected that urban populations will continue to increase over the coming decades, despite

the fact that total population (i.e. including the rural population) is projected to start declining from around 2030. The prospects for economic growth and rising incomes are similarly positive. Demand for lobster and other premium products should continue to increase over the coming decades, albeit at a slower rate than has been the case over the past decade. It must also be noted that the economy of China is facing several structural challenges, including: a declining working population (with a changing age structure of population); managing the continued shift towards a consumption-based economy; and facing certain macro policy challenges. These matters represent significant downside risks to the longer-term outlook for lobster demand in China.

Figure 14: China urban and rural population and income groups, projection to 2050



Source: Hamshere et al. 2014

3.5 The Americas is a significant source of spiny lobster on international markets

Overall production volumes of spiny lobster in the Americas have been broadly steady over recent years, and there is probably little opportunity for further exploitation of the constituent fisheries. Consistent with this, export volumes have been largely unchanged in absolute terms and have declined as a share of global trade, and this is likely to remain the case in future years.

The general reputation of Caribbean spiny lobster on international markets is as strong, sweet lobster that is reasonably priced and widely available. In particular, the Americas is the most significant source of frozen spiny lobster for international markets. However, there are a large number of producers and options in this market, and competition can tend to be on the basis of price rather than consistent preferences for a particular origin.

While the higher returns available for live exports are obviously attractive, and Florida lobster in particular has had some success with live trade, many producers in the Americas have historically been constrained by a range of production, processing, transport and regulatory factors. Time in the air is not the limiting factor – particularly significant in many cases is the lack of reliable access to the intermediary storage and transport infrastructure necessary for delivering live lobster to distant markets in good condition. Depending on their locations they have access to advanced transport systems out of the US (Florida) or are restricted to shipping frozen lobster due to a lack of suitable handling and air freight options (e.g. Brazil). These matters justify ongoing monitoring, especially while the disruption in the China–Australia trade relationship provides a high-profit incentive for Caribbean and other competitors to invest in infrastructure and R&D to help grow their share of the live spiny lobster market in China.

3.6 Trade for other spiny lobster producers tends to be more concentrated

Taken together, Australia and New Zealand exports represented about 20% of the total value of global lobster trade in 2018. Australian and New Zealand trade swung overwhelmingly towards live exports to China over the past decade or more. No other market has been able to absorb the volume at the attractive prices commanded in China. This necessarily entailed reducing the volumes exported to other traditional markets, notably Japan, Taiwan and the USA. Concurrently, free trade agreements saw the China trade become more direct, rather than relying on trans-shipment through Vietnam, Hong Kong or Macao. Reliance on a single market entails some risk, the current trade hiatus for Australian lobster into China bringing this into a stark

light. The mitigation strategy for Australian lobster appears to be to diversify the trade, which will necessarily encompass some element of re-entering previously significant markets. These matters are discussed in more detail in Chapter 6.

Vietnamese production and trade has been difficult to quantify, but the advent of COVID-19 seems to have brought about tighter border controls with China and concomitant customs information collection; statistics show significant trade from Vietnam into China. It is thought that a significant proportion of this trade is live, and further that a significant proportion is aquaculture product raised in sea-cages along the Vietnamese coast.

After Brazil and Nicaragua (see the Americas section above), South Africa is the next most significant exporting country by trade value, at about 1.5% of total global trade value. The South African trade has declined over the past several years and is currently about US\$ 50 million per year, traded mostly as frozen product. Trade from other African countries together is less than South Africa's exports.

3.7 Increasing competition from other high value crustaceans

Markets never stand still, and the king crab sector is likely to become a significant competitor for market share within the high value crustacean market. While South Korea and China have been the main consumers of significant volumes of live Russian snow and red king crab, this market concentration can be expected to increase as economic and trade sanctions on Russian businesses are enacted by US, Europe and Japan. The momentum of this high volume, high value trade is thus expected to swing further towards China, South Korea and other countries that have not imposed such sanctions, with an increased focus on live product to suit those market preferences.

4.0 Australia and New Zealand rock lobster

Australian and New Zealand rock lobster represent only a relatively small portion of global supply but are major sources of supply in the increasingly significant and competitive market for live lobster in China, and typically attract a premium price. As such, Australian and New Zealand rock lobster production and trade is of global significance. Looking inwards, the Antipodean rock lobster fisheries are among the most valuable wild-catch fisheries in Australia and New Zealand, and support many regional communities.

4.1 Western rock lobster accounts for the majority of production

A diverse range of rock lobster species exist in the waters of Australia and New Zealand but only four species (distributed across eight different management jurisdictions) support significant fisheries:

- western rock lobster (*Panulirus cygnus*), caught along the west coast of Western Australia;
- southern/red rock lobster (*Jasus edwardsii*), caught predominantly along the coastline of (south-eastern) South Australia, Victoria, Tasmania, and New Zealand;
- eastern/packhorse rock lobster (*Sagmariasus verreauxi*), caught mostly along the coasts of New South Wales and (northern) New Zealand; and,
- ornate rock lobster (*Panulirus ornatus*), caught mainly in the Torres Strait Tropical Rock Lobster Fishery and northern Queensland).

The production of western rock lobster, a species endemic to Western Australia, accounts for the majority of the volume of Australian lobster production. Next most significant is southern rock lobster, while eastern and tropical/ornate rock lobster catches are relatively minor by comparison.

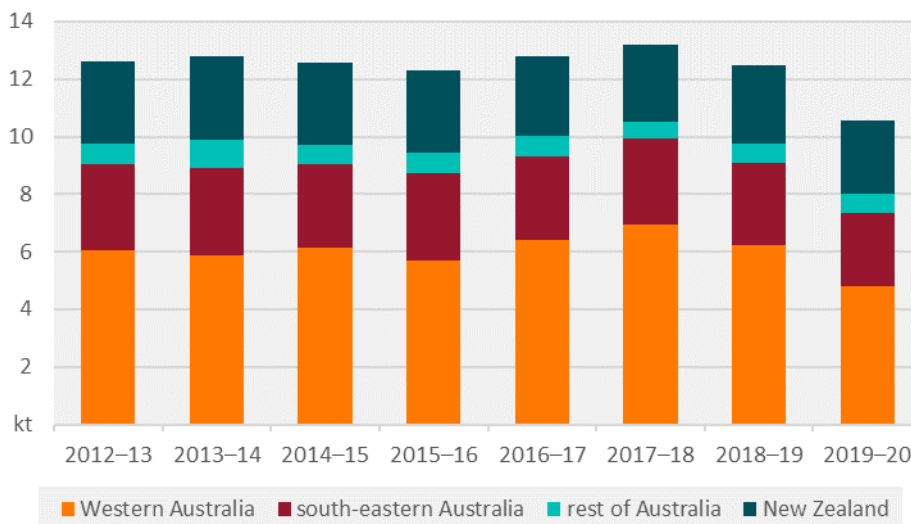
Despite typically trading at a discount to most other commercial species of Australian lobster, the productivity of the western rock lobster fishery has translated into Western Australia producing the majority of industry value in almost all years for the past decade.

The timing of commercial catches in the western rock lobster fishery reflects the combined influences of seasonal patterns in catchability and demand. Periods of high catchability include the 'whites' phase of the fishery (December/January), as well as March–April, when large numbers of undersize lobsters moult into legal size and are relatively catchable. Periods of high demand normally include the Chinese New Year celebrations (January/February) and other 'lucky' Chinese days/weeks. Catches are generally lower from June, reflecting factors including lower demand in China, more rough weather days, lower catchability, and many females starting to mate and thus becoming illegal for capture.

Under normal circumstances, the timing of commercial catches reflects the combined influences of seasonal patterns in catchability and demand, albeit with some variability in timing between years and between zones.

Production from the Australian and New Zealand rock lobster fisheries has been broadly steady over recent years, perhaps owing to the widespread implementation of quota limits in place of effort controls. Prices over recent years have continued to be at levels higher than was the case of a decade or more ago. The average landed price for Australian lobster has increased significantly over the past decade, from approximately A\$24–32 per kilogram in the period 2004–2008 to over A\$60 per kilogram in the period 2014–2019. These higher prices continued to be achieved by New Zealand rock lobster after trade disruption interrupted the direct trade of Australian lobster to China.

Figure 15: Lobster production in Australia and New Zealand, by state/country, 2012–13 to 2019–20



Note: Data for Australia and New Zealand are based on annual periods with balance dates of 30 June and 31 March, respectively.
Sources: ABARES; Fisheries New Zealand

4.2 There are significant differences but also interdependencies between fisheries

There is a high degree of price integration in domestic lobster prices. Southern rock lobster and eastern rock lobster production in South Australia, Tasmania, Victoria and New South Wales rarely show price variances more than a few dollars per kilogram. The western rock lobster consistently trades domestically at A\$10–15 per kilogram discount to these other Australian domestic lobster markets.

The only state at odds with the longer-term increasing trend in price is Queensland, whose production is comprised almost exclusively of tropical lobster species. While trading at discount to other Australian lobster product in live export markets, Queensland exports follow the general trend of export market pricing for other Australian lobster. Owing to catch methods and logistics, a significant proportion is not suitable for live export and is marketed mostly as frozen product, achieving relatively low prices.

Eastern rock lobster is generally not marketed to China because of colour disadvantage in that market, and as a result eastern rock lobster tends to achieve higher domestic market prices than export prices.

The pricing trends, correlations and discrepancies among Australian lobster product are largely a reflection of international export prices worked back up the supply chain.

A number of factors in export markets are understood to contribute to this price differentiation between Australian lobster product, including:

- Different levels of engagement with the market;
- The fact that southern rock lobster (and notably New Zealand southern rock lobster) entered the China-direct market earlier than western rock lobster;
- Southern rock lobster demonstrates higher survival rates in the live export markets than western rock lobster and attracts a colour premium in China markets; and
- Anecdotaly, some provincial seafood markets in China exhibit a strong and persistent preference for a particular species.

4.3 Industry prosperity has been driven in recent years by live exports to China

4.3.1 China is the largest and highest-paying market

China is the market of choice for live lobster from Australia and New Zealand. This is because China is the largest and highest-paying market. Relatively few lobsters are sold in other forms or to other markets, given the differences in price and margin.

For much of recent history the traditional focus of the Western Australian trade was markets in Asia including Taipei and Japan. However, the emergence of China as a global economy with increasing consumer purchasing power has had a major impact on trade patterns for lobster. Locally the emergence of China as a premium export market for live lobster resulted in virtually all exports of western rock lobster being sold as live product to China. This followed, with time lags, a similar pattern already evident for southern rock lobster caught in the Eastern States and New Zealand.

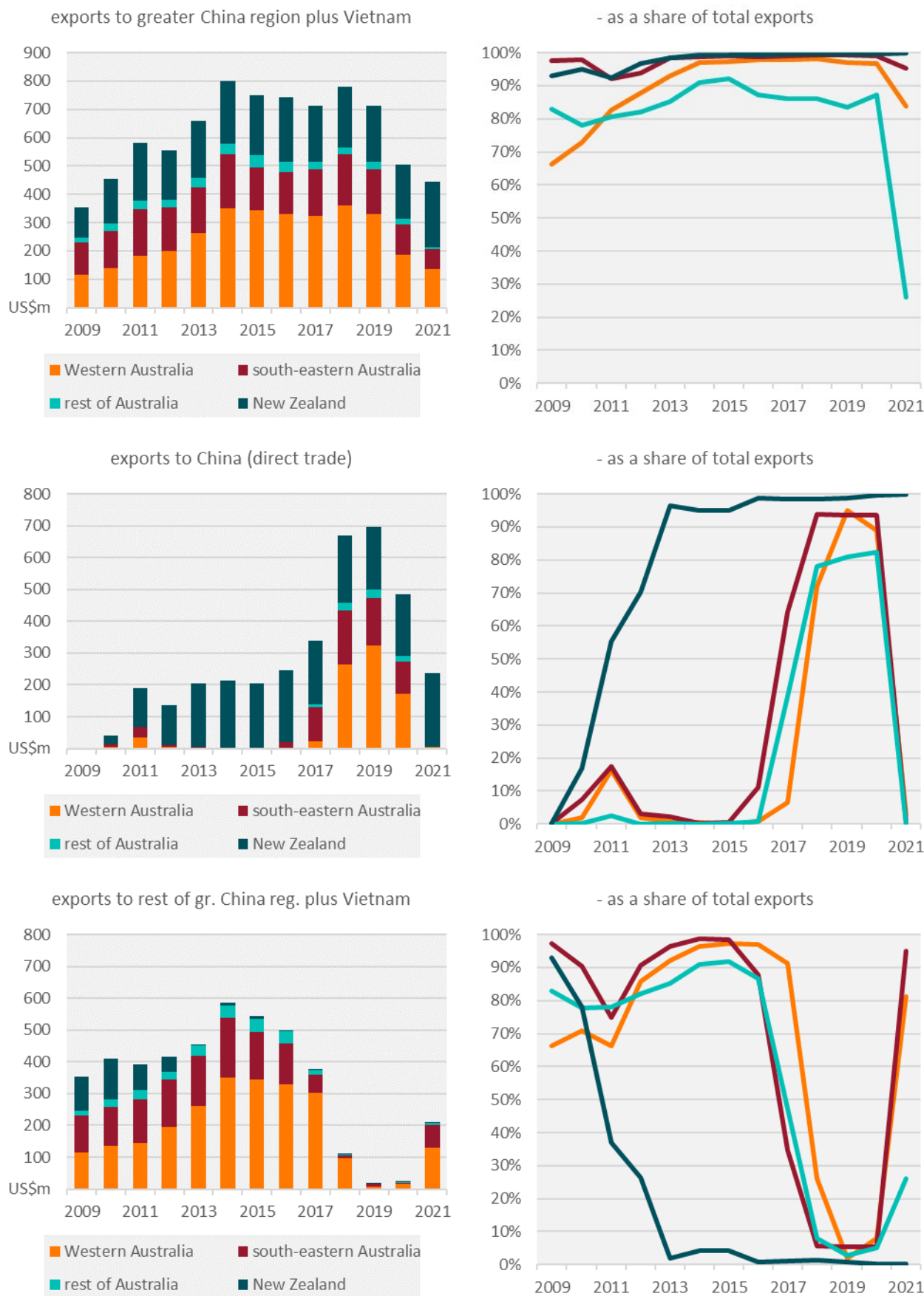
The vast majority of Australian lobster exports are live lobster shipped direct to distribution centres in China and Hong Kong. Historically, Australian lobster exports to China were mainly distributed through Vietnam and Hong Kong. However, with the advent of the China–Australia Free Trade Agreement, China became the main export destination and distribution centre. But in late 2020, a hiatus in the trade occurred – see Section 6 for discussion of these events.

4.3.2 Preferential trade agreements have supported increases in direct trade with China

The staged reduction (starting late-2015) and then elimination (from 1 January 2019) of tariffs on Australian lobster, under the China–Australia Free Trade Agreement, has resulted in a significant increase of direct trade into China. Lobster from Australia is now treated consistently with that from New Zealand, in not being subject to a tariff.

The NZ–China FTA signed in 2008 reduced tariffs such that all New Zealand exports of seafood products were tariff free by 2012. This resulted in more direct imports into China—by 2016 China imported 99 per cent of New Zealand’s rock lobster exports. 2019 upgrades to that FTA include a new commitment to expedite customs clearance to six hours for perishable goods (such as fresh seafood, including rock lobster and salmon). This could be expected to enhance supply chain integrity for New Zealand exporters of fresh high value food products that need to get to market quickly.

Figure 16: Australia and New Zealand lobster exports to the greater China region plus Vietnam, 2009–2021



Note: For the purposes of this report, the greater China region is deemed to include China, Hong Kong, Macau, Vietnam and Taiwan.
Sources: ABS; UN Comtrade; WRL analysis

4.4 The importance of air freight capacity for export markets

Airfreighting seafood reduces time in transit, which is important for preserving the quality of fresh and live seafood and hence maximising returns on the product. Australia's live rock lobster export industry is a leading example of the importance of airfreight in Australia's seafood export industry. The establishment of live trade required the industry to develop solutions to managing lobsters from the point of capture to the point of final delivery to the customer. This has involved considerable investments in building holding infrastructure close to airports and developing efficient air transport packaging and delivery logistics.

The importance of airfreight capacity and availability has become particularly apparent during the COVID-19 pandemic. Constraints to air freight capacity rapidly became apparent and freight rates escalated significantly when passenger flights were curtailed as travel restrictions came into effect. With the reduction in scheduled flights, exporters became more reliant on dedicated freight charter flights to shift cargo. For a more dedicated discussion of responses to the freight situation during the pandemic, see the COVID-19 section of this paper.

4.5 The domestic market is small (and is also supplied through imports)

The effects of COVID-19 and China trade disruptions, covered in more detail in Sections 5 and 6, have meant that more Australian lobster was sold into the domestic market in 2020 and 2021 than in previous years. Nevertheless, lobster production far exceeds consumption in Australia and yet there are still significant volumes of lobster imported.

While this includes some small amounts of re-exports (i.e. lobster transiting Australia on the way to other markets, such as the case of lobster from the Papua New Guinea part of the Torres Strait Rock Lobster Fishery transiting Cairns airport), the vast majority of imports are destined for domestic consumption.

Imports account for approximately two-thirds of the total consumption of commercial lobster within Australia, albeit with significant regional and temporal variation in consumption patterns. Major sources for imported lobster include Canada, the United States, Brazil, and the Bahamas. The overwhelming majority of imports are of frozen product, including both whole lobster and lobster tails.

Lobster consumption within Australia is further supported by recreational catches and other non-commercial fishing, although lobster taken under such arrangements are not readily available to all in the same manner as a commercially-caught lobster (whether domestic or imported).

That most of the commercial lobster catch in Australia (and New Zealand) is exported as a premium product while a significant amount of lower-valued lobster is imported from elsewhere in the world is consistent with economic principles. The patterns of trade and consumption reflect differing consumer preferences around the world.⁵

The general consistency of observed market outcomes with economic principles does not necessarily mean that there are no imperfections in markets or that there are no impediments or obstacles to the local supply and consumption of lobster. Increasing the availability and accessibility of western rock lobster for local consumption is a worthwhile objective, shared by industry and the WA Government. In support of such, initiatives such as the Local Lobster Program (2016–2020) and then the Back of Boat lobster sales mechanism (introduced 2020) have permitted fishers to sell directly to the public, and to local restaurants and other businesses under certain conditions.⁶

⁵ Of course, the observed patterns of trade and consumption are also influenced by supply dynamics and logistical/trade matters.

⁶ It is of note that the cheapest western rock lobster (to the consumer) will usually be that which has been sold directly from the back of the boat; and some customers may consider there to be value in the experience of visiting a fishing boat harbour and interacting with a fisher.

5.0 COVID-19, trade disruption and the western rock lobster industry

5.1 COVID-19

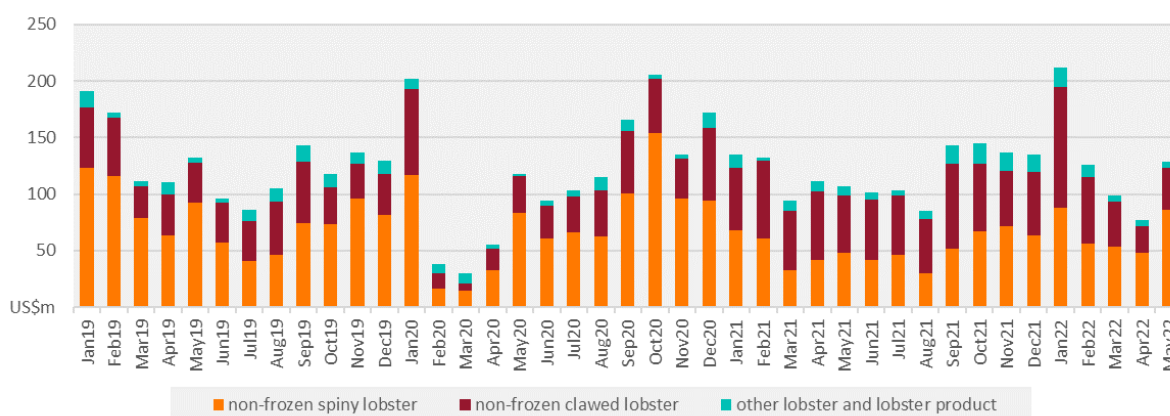
In recognition of the accelerating spread of COVID-19 in China, authorities introduced a range of travel and other restrictions during January 2020, and actively discouraged the large gatherings traditionally held during the Chinese New Year period. As a consequence of these measures, and the general apprehension among the populace, there was an extraordinary reduction in the demand for high-value seafood such as live Australian rock lobster (during what would normally be a high-demand period). Imports of western rock lobster and many other premium seafoods had effectively ceased by the final week of January 2020.

In response to decreased demand in China and elsewhere, global lobster production slowed significantly, and effectively came to a halt for a time in many quota-based fisheries, especially those that focus on trade in live lobster, such as is the case with western rock lobster. Notably, the cessation of fishing for western rock lobster was the first time that such an outcome had been driven by industry rather than mandated by government.

While management of the pandemic brought China's economy to a standstill during the first couple of months of the outbreak, the severity of the mitigation measures was possibly justified given that relatively rapid recovery of economic activity once restrictions started to ease.

Many sectors of the economy reached or surpassed their pre-outbreak volumes of activity within a few months. In most respects, the economic recovery has surprised on the upside. However, consumer spending was slower to recover than the industrial sector. Relatively little direct government support was provided to households. In some cases, consumption vouchers encouraged spending at restaurants and on certain retail goods, but these measures were limited. By the beginning of April 2020, around 80 per cent of vendors had resumed trading at China's biggest seafood market in Guangzhou, however, restaurant activity and the demand for premium imported products such as western rock lobster recovered more slowly.

Figure 17: China imports of lobster, value by product type, monthly



Sources: ABS; GACC; Stats NZ; WRL analysis

On the supply side, integral to the recovery of Australian live rock lobster exports was the establishment of the International Freight Assistance Mechanism (IFAM) in April 2020. IFAM is an Australian Government initiative that provides support for the export of high-value perishable produce from the fisheries and agricultural sectors. One of the earliest impacts of the global spread of COVID-19 had been the severe constraints on the availability of international air freight. This was partly due to the reduction in international passenger flights, which often also offer freight capacity in support of international merchandise trade (especially in relation to high-value, perishable products such as live lobster). Further to this, availability and expense of dedicated charter flights for freight also became problematic. Freight rates to the main lobster export destinations rose to multiples of 3 or more times pre-COVID levels, leading to a significant increase in overall export supply chain costs. IFAM

supported a proportion of the freight cost increases, and chartered dedicated freight flights – without that support, freight costs and availability would have been even more problematic. The IFAM program is funded until at least June 2022.

While Australian rock lobster exports were gradually recovering between late-February and May 2020, by June there were increasing concerns about a possible 'second wave' of COVID-19 infections in China. In response to this development, western rock lobster prices dropped, and fishing again slowed for a time. However, authorities in China appeared to have been largely successful in containing a number of localised outbreaks through targeted lockdowns and other such restrictions.

5.2 Trade with China has been disrupted

While the COVID story continued and continues to unfold, towards the end of 2020 a compounding event impacted on Australian lobster exports.

During the final days of October 2020, many shipments of live Australian rock lobster became subject to significant delays in the customs clearance process. Rates of inspection were reported to have been increased to (at least) 50 per cent of consignments, and there was also some uncertainty regarding the nature of testing being applied. Information available at the time suggested that elements of the new process related to health and compliance checks, with subsequent speculation relating to concerns about trace amounts of metals within the rock lobster. Notably, the new measures were reported to only be applying to live rock lobster from Australia; lobster from other origins, and fresh and frozen Australian lobster were not affected.

The delays in customs clearance for those consignments arriving during the final days of October raised the very real prospect of lobster dying in transit, or of quality being otherwise adversely affected. The risk and uncertainty that this created had an immediate effect on both exporters and importers, and Australian lobster fisheries largely ceased operations at the beginning of November. The hope at the time was that clarification from authorities in China would be forthcoming and that the live trade could then resume with the necessary confidence. Unfortunately, over a year later this is still not the case.

It would be inadvisable to make judgements regarding these measures without all of the relevant information, some of which is yet to become available. However, it should be noted that actions by China are being questioned in light of the global, rules-based system of international trade and investment.

That said, participants in the Australian rock lobster industry appreciate the right of countries to implement border inspection processes that ensure food safety for their citizens. Ultimately, there is every confidence that Australian rock lobster meets the highest standards of food safety and quality.⁷

It has taken the collective effort of Australian and Chinese businesses over many decades to create a positive, mutually-respectful and beneficial trading relationship. It is in best interests of all concerned that this trade resume. Demand for Australian rock lobster is still evident in China, as evidenced by the relatively small quantities of whole frozen and fresh chilled product imported during 2021, and industry remains fully committed to supplying existing and new customers in China.

It is difficult, however, to not see this trade disruption in the context of a deteriorating China–Australia relationship and an increasingly assertive China on the geopolitical ascent. In this respect, the Australian rock lobster industry may be something of a casualty of political disputes outside its realm. This is also the case with certain other Australian primary industries that have also recently been subject to trade disruptions with China – notably wine, barley and beef - however these industries all had some ability to pivot exports to similarly profitable markets. Of the industries that have seen market access reduced, none was as reliant on trade with China as lobster.

Australia lobster fishing resumed in mid-November 2020, but with prices reflecting the new reality of lobster marketing and trading selling into alternative markets (both international and domestic). International trade data for November 2020 onward demonstrate a significant decline in Australian lobster exports, with the cessation in shipments to China being only partially offset by increased exports reported for destinations such as Hong Kong, Taiwan and South Korea. There was a significant rebound in fishing activity during December 2020, however, a large share of the catch went into domestic markets. The fact that historically large volumes of Australian lobster were diverted to Australian consumers, particularly over the high-catch

⁷ In this respect, it is worth noting that the food safety and quality systems applying to Australian rock lobster are world class, and fully compliant with the Codex Committee on Fish and Fishery Products standards set by the FAO and WHO.

summer periods of 2020-21 and 2021-22, demonstrate the importance of the domestic market at a time of difficult international trading and logistics conditions.

Trade statistics show that from the latter part of the extended 2021-2022 season, almost all western rock lobster production was once again traded internationally, with relatively low volumes making their way onto the domestic market. A similar pattern was apparent with southern and tropical rock lobster exports. While there are indications that those marketers and exporters managed, in a relatively short time, to create alternative export channels capable of absorbing significant volumes of lobster, the major increase in trade has been directed to Hong Kong - numerous articles in the international press suggest that a significant proportion of this trade made its way into China via grey trade channels. The additional supply-chain costs of this trade act to depress export prices. Of the remaining lobster that is exported, a significant proportion is now being exported frozen, either whole or as tails – this also has an effect of reducing the weighted average export price.

The combination of less exports being sent live, and more product sold into domestic markets, has the combined effect of reducing overall average beach prices. The additional impost of higher supply chain costs further exacerbated the depressed beach prices achieved by fishers through most of the extended 2021-22 season and into calendar year 2022. This situation is ongoing and, assuming the continued absence of the direct market to China, contributes to a subdued outlook for beach prices in the medium term.

5.3 Changes in trade flows

The absence of direct-traded Australian live rock lobster from the China market has resulted in trade diversion to the benefit of international competitors who are able to supply the market that remains the largest live rock lobster importer in the world. This benefit can be seen in volumes and/or prices - for example, New Zealand continues to send almost all rock lobster production to China while enjoying an increase in prices, averaging USD101/kg in 2021.

While overall volume of live spiny lobster imports into China decreased significantly between 2019 and 2021 (17,030 tonnes with a total value of USD942 million in 2019; versus 10,800 tonnes with a total value of USD622 million in 2021), countries other than Australia have been able to increase their share of market, and unit price, for live lobster. Key winners in this regard include Mexico and the USA:

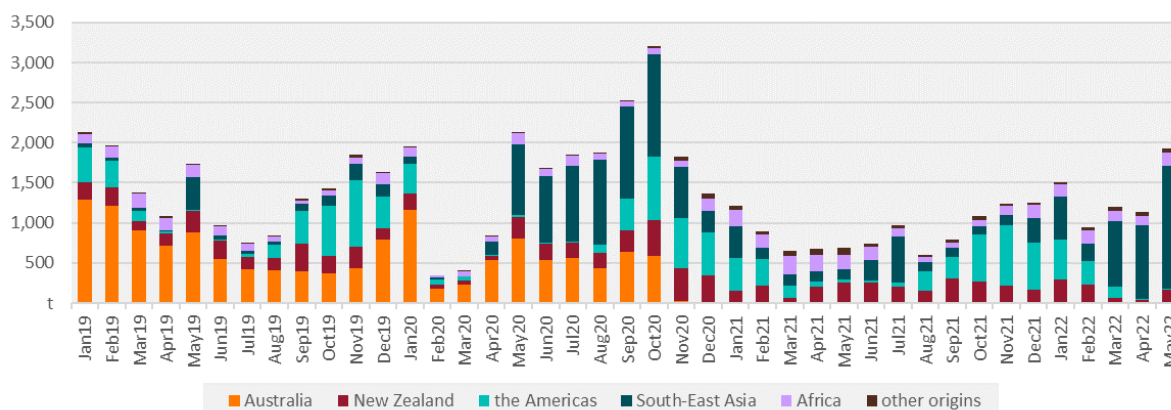
Mexico – live spiny lobster market share by volume into China of 11% pre-COVID increased to 17% in 2021, together with prices increasing from USD47/kg pre-COVID, to USD67/kg in 2021

USA - live spiny lobster market share by volume into China of 7% pre-COVID increased to 13% in 2021, together with prices increasing from USD22/kg pre-COVID, to USD46/kg in 2021

Importantly, China's import statistics indicate that imports of live spiny lobster from Vietnam increased more than ten-fold in 2020, to nearly 6,500 tonnes, representing 32% of all live rock lobster imports in China that year. The assumption is that this trade is mostly farmed (aquacultured) spiny lobster, given the uncertainties around the scale and location of grey trade routes. Nearly 6,000 tonnes of this trade occurred in the 6 months May to October 2020, (a rate around 1,000 tonnes per month) indicating the existence of a significant supply chain capability. With an average unit price in 2020 of USD 26/kg this represented some of the lowest valued product imported into China, but unit prices began to show an upward trajectory towards the end of 2020 (as did prices for lobster from other origins).

China's imports of live spiny lobster from Vietnam reduced significantly in 2021 to 1,063 tonnes for the calendar year, perhaps owing to COVID disruption in both countries, but appear to be increasing in volume in the early months of 2022 with imports in March April and May of 720 tonnes, 855 tonnes and 1460 tonnes respectively. These April and May 2022 imports from Vietnam made up over 75% of China's total live spiny lobster imports in those months. Import unit prices in 2022 for Vietnamese product are in the USD38-40/kg range, which is the indicative floor market price for live spiny lobster in China, year to date.

Figure 18: China imports of non-frozen spiny lobster, quantity by origin, monthly



Sources: ABS; GACC; Stats NZ; WRL analysis

Figure 19: China imports of non-frozen spiny lobster, value by origin, monthly

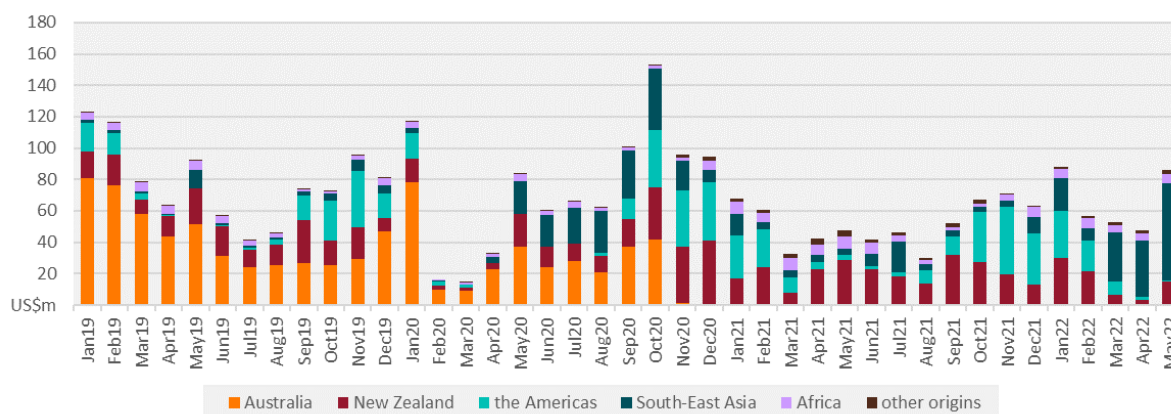
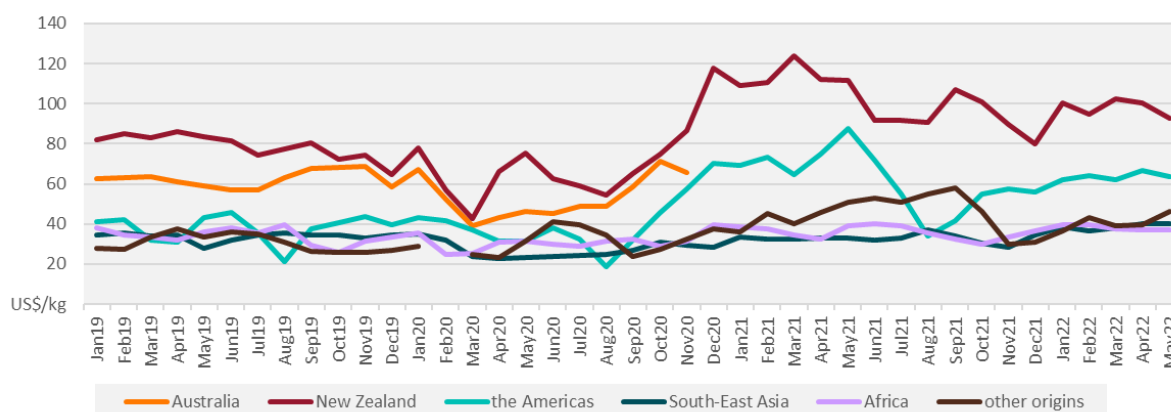


Figure 20: China imports of non-frozen spiny lobster, unit value by origin, monthly



Sources: ABS; GACC; Stats NZ; WRL analysis

Volumes of **frozen** spiny lobster imports into China increased during COVID (4,093 tonnes with a value of USD75 million in 2019 vs 5,215 tonnes with a value of USD105 million in 2021). While priced significantly lower than live product, this market proved relatively resilient in volume and in unit prices over the period. The China frozen spiny lobster market is dominated by Cuba (37% market share by volume in 2021), Brazil (22%) and India (21%). Australia, with a 3% market share in 2021, is also the highest value competitor in the space, with 2021 import prices averaging USD33/kg.

Live clawed lobster remains the highest volume lobster category imported into China (2019 imports of 21,877 tonnes with a total value of USD475 million versus 2021 imports of 25,580 tonnes with a total value of USD681 million). Continued strong Canadian sales into China (19,996 tonnes in 2021) benefited from higher unit prices, with unit values increasing from pre-COVID levels, from around USD22/kg to average USD27/kg in 2021. The resumption of the USA-China trade led to clawed lobster imports from the USA returning to historical levels around 5,500 tonnes in 2021, with unit values increasing from pre-COVID levels around USD20/kg to average USD26/kg in 2021. 2022 prices for Canadian and US live lobster are trending higher still, at USD32-35/kg.

5.4 Alternative international markets for western rock lobster

China, the most significant market for Australia's tropical, southern and western rock lobster, reduced market access in November 2020. In order to address the industry's vulnerability to a single dominant customer, alternative markets need to be developed. A good place to start is by looking at the markets' history. Processors and marketers launched investigations into export markets that are known to have taken reasonable volumes of lobster in the past. WRL developed an information package outlining the key potential markets prospectively capable of absorbing the expected lobster supply. The information pack characterizes each market in terms of the grade and type of lobster preferred, the form (cooked or live) and the typical unit prices paid over the past 20 years. WRL analysed available trade data for the past 24 years (1996 to 2019) with the aim being to highlight major alternative final markets and the volume and form of product they have historically preferred. The following is a summary of the early part of Western Rock Lobster's "Understanding the Markets" initiative.

Western rock lobster exports were at levels around 10,000 tonnes per year through the 1990's up until 2007. At that time catches (and exports) dropped, the industry was restructured to a quota system and the commercial catch (and exports) gradually increased from around 5,000 tonnes to the present 6,600 tonnes per year.

The most significant exports of western rock lobster over the past 24 years have been to Japan, United States of America, Taiwan, Singapore; and Vietnam, Hong Kong and Macao and China. The most important fact to note is that while the first 5 of these may have been significant markets in the past, none have accounted for meaningful volumes of western rock lobster in the last five to ten years as the trade shifted to be almost entirely directed to China.

The historical trade figures for Vietnam, Hong Kong and Macao need to be treated with some circumspection because these destinations were, in the past, mostly staging destinations for product whose final destination was mainland China. The introduction of the China-Australia Free Trade Agreement in recent years brought about the reduction and eventual cessation of this indirect trade, as lobster were imported directly into China. This was set against the backdrop of China ever-increasingly being the final destination for western rock lobster exports.

Since 2010 most product has been exported live, reflecting the increasing reliance on China as the major export destination. Before this time, "non-viable" product (whole cooked and raw frozen, and frozen tails), were the highest volume products exported. Of note, live product attracts a significant premium in particular markets, while non-viable product tends to command relatively lower prices.

Japan – has matured from once showing a preference for live product to now showing a preference for frozen or chilled product. Japan's total import of live rock lobster declined from 2,300 tonnes in 2002 to under 100 tonnes per year from 2018. Japan's imports of Australian live rock lobster declined below 200 tonnes per year in 2009 and have been less than 50 tonnes per year since 2014. While frozen and chilled rock lobster is still a reasonably-sized market in Japan at around 1300 tonnes per year in recent times, the unit value commended by Australian product is not comparable with live exports into China, at USD 40 to USD 50 per kg.

Taiwan – similar to Japan, has evolved from a market with a preference for live product to now show a preference for frozen product. Of the small amount of non-frozen rock lobster imported, almost all is of Indonesian origin. Taiwan's demand for frozen spiny lobster has increasingly been met by product of Caribbean origin, at prices USD 5 to 10 less than Australian product. To note, the Taiwan market has been importing increasing volumes of American lobster over the last decade.

USA – as frozen product, Australian rock lobster competes in the same space as Caribbean spiny rock lobster. Rock lobster imports into the USA have declined over time, from 10,000+ tonnes per year in the late 2000's to around 7,000 tonnes per year in the late 2010's. Most is imported from the Caribbean (Brazil, Honduras, Nicaragua, Bahamas etc) and imports from these locations have in aggregate remained steady over the years. Imports from Australia declined over this period, from around 1,500 tonnes per year in the late 2010's to under 100 tonnes per year recently. It is conceivable that trade from the Caribbean may redirect into China, either as frozen or, as supply chains grow more sophisticated, as live product. This would create room for Australian lobster to compete in the USA market in the shorter term.

South Korea – for cultural reasons has never shown an affinity for spiny lobster, and now shows a preference for clawed lobster from the USA and Canada with some premium for live lobster. Exports of Australian spiny lobster to South Korea in 2021 totalled 67 tonnes with an export value of A\$2.9m, or a unit value of A\$43 – almost all of this was live product from Western Australia.

Mexico - As an example of efforts to increase market access for Australian product to new markets, the Department of Agriculture, Water and the Environment has negotiated new market access with Mexico for the export of frozen lobsters from Australia to Mexico. As noted above, since the onset of trade disruptions between China and Australia, Mexico has increased export volumes of high value live product to China. In essence, then, access to the Mexican market means that Australian frozen lobster may act to fill the gap in Mexico's local supply created by increased exports.

Notwithstanding the existence of alternative markets to the China live export trade, it is clear that these markets have limited ability to accept the full volume of Australian product now not able to enter China, in addition to being lower priced markets. Shorter-term prospects for prices within the current geopolitical outlook are therefore reasonably pessimistic. Beach prices are subdued, and the expectation is that GVP will remain steady into the foreseeable future – which carries significant implications for resource access fees and funding.

In the longer term, should access to the direct China trade re-open, and despite the considerable size and attractive price points that market commands, it might be understandable should Australian traders and marketers hesitate to re-commit such a sizeable proportion of product into a single market as has been the case for the past several years.

The development of alternative markets will necessarily be a longer-term endeavour, with the additional challenge that existing and potential alternative markets are still emerging from the stresses of the COVID-19 crisis and acknowledging ongoing compromised airfreight capacity and costs. This will necessarily entail considerable start-up costs. Processors are investing in R&D and marketing development to determine the potential of these alternative markets, with some government assistance available. Geraldton Fishermen's Co-operative received a grant of \$75,000 from the WA State Government's International Competitiveness Co-Investment Fund, announced 9 December 2020, to help finance their project "Diversification and market expansion - to build awareness and develop relationships in key seafood markets of Japan, Taiwan and Singapore, and enhance online marketing and sales capability for frozen Western Rock Lobster." The Federal Government further awarded \$1,926,000 to Geraldton Fishermen's Co-operative in March 2022 as part of the Agricultural Trade and Market Access Cooperation program, to build on GFC's recent frozen lobster processing capacity upgrades in Fremantle by providing the infrastructure required to produce a more comprehensive range of higher-priced value-added products.

Analysis of Australian export trade shows that, in the absence of a direct live export market to China, all states have experienced reductions in export volumes and export revenue. Figures from the Australian Bureau of Statistics show that exports in 2021 were sent to a much wider array of countries than in 2019, albeit at significantly lower unit prices. The value of exports from most states in calendar year 2021 was more than 50% lower than equivalent 2019 (pre-COVID) values:

- Total rock lobster export volumes and value for Australia overall decreased, from pre-COVID 2019 (8,923 tonnes with an export value of AUD762 million) to 2021 (6,452 tonnes with an export value of AUD344 million). This represents a 28% reduction in export volume, and a 55% reduction in export value from 2019 to 2021:
 - Total export volumes and value from **Western Australia** decreased, from pre-COVID 2019 (6,162 tonnes with an export value of AUD488 million) to 2021 (4,427 tonnes with an export value of AUD212 million). This represents a 28% reduction in export volume, and a 56% reduction in export value from 2019 to 2021.

- Total export volumes and value from **other Australian states** decreased from 2019 (2,761 tonnes with an export value of AUD274 million) to 2021 (2,025 tonnes with an export value of AUD132 million). This represents a 27% reduction in export volume, and a 52% reduction in export value from 2019 to 2021.
- Live exports continue to dominate Australia’s lobster trade. In 2021, live exports represented 5,940 tonnes of a total 6,452 tonnes exported, or 92% of lobster exported from Australia:
 - 90% of WA lobster exports were live - 3,982 tonnes of a total 4,427 tonnes exported
 - 97% of the rest of Australia lobster exports were live - 1,958 tonnes of a total 2,025 tonnes exported
- The major export destinations in 2021 for **live** product from most Australian states were:
 - Hong Kong - 3,893 tonnes (2,780 tonnes being 70% of live exports from WA; and 1,113 tonnes being 57% of live exports from rest of Australia)
 - Vietnam - 756 tonnes (269 tonnes being 7% of live exports from WA; and 487 tonnes being 25% of live exports from rest of Australia)
 - Taiwan - 682 tonnes (650 tonnes being 16% of live exports from WA; and 32 tonnes being 2% of live exports from rest of Australia)
 - Thailand - 251 tonnes (2 tonnes from WA; 249 tonnes being 13% of live exports from rest of Australia)
- Frozen exports in 2021 made up 445 tonnes (10% by volume) of WA’s exports, and 65 tonnes (3% by volume) of exports from the rest of Australia. The major export destinations in 2021 for **frozen** product from most Australian states were:
 - the USA - 242 tonnes (209 tonnes being 47% of frozen exports from WA; and 33 tonnes being 50% of frozen exports from rest of Australia)
 - China - 110 tonnes (109 tonnes being 25% of frozen exports from WA; 2 tonnes from rest of Australia)
 - Europe - 77 tonnes (from WA, being 19% of frozen exports from WA)
 - Australian states other than WA also sent 11 tonnes of frozen product to Singapore; and 15 tonnes to New Zealand
- Given the high costs of air freight in absolute terms and relative to sea freight costs, Western Australian exporters appear to have explored the potential of sea freight more than their counterparts in the rest of Australia when exporting frozen product. In 2021, of the WA frozen product exported, 66% (293 tonnes) travelled by sea, mostly to the US and Europe. Of the product from the rest of Australia, 28% (18 tonnes) travelled by sea.

5.5 Increased supplies of western rock lobster for the domestic market

The disruption of trade with China in late 2020 resulted in an urgent focus on supplying western rock lobster for local/domestic consumption (in addition to the pursuit of alternative international markets). Thankfully for industry, the immediate timing of this pivot to domestic markets somewhat aligned with the seasonal increase in demand leading into Christmas and the summer holiday period.

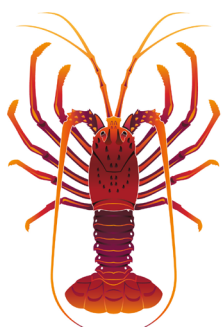
To support an increase in local supplies and availability, and in recognition of existing levels of community engagement and demand, the limit applying to the Back of Boat sales mechanism was increased from 100 to 200 lobsters (per trip) for the period between mid-December 2020 and the end of January 2021. This daily limit was further doubled, to 400 lobsters per trip, for the corresponding period the following year. Back of Boat sales generally require a buyer to “pre-book” their purchase with a particular fisher. Local demand is concentrated in the Christmas holiday period: reported landings of 34 tonnes in December 2021 represented 57% of the year’s Back of Boat landings. Pricing is a matter for the individual fisher and customer, with reports suggesting typical prices around \$40-45/kg over the Christmas 2021 period, representing a premium to fishers of \$10/kg or more compared to then-prevailing beach prices.

As popular and successful as the Back of Boat mechanism proved to be, it was just one of multiple channels through which domestic sales were increased, particularly to take advantage of peak domestic demand around Christmas holiday season. Processors with their own retailing operations significantly lowered prices and increased sales, and there has been an observed increase in the volume of western rock lobster being directed to local/domestic consumers through wholesale channels.⁸ This included significantly increasing the presence of western rock lobster in the domestic market beyond Western Australia, inevitably competing with east-coast product. Notably, since the disruption to the China trade, major supermarkets have offered cooked western rock lobsters in the <400-gram weight range at \$20-\$24 per piece during the lead up to Christmas.

The commercial sector reported processing 155 tonnes for the domestic market during December 2021, representing around 15% of December landings of 997 tonnes. However, analysis of exports indicates the volume directed to domestic markets (including east coast markets) may have approached 400 tonnes.

The pivot to domestic markets has undoubtedly been successful in providing some short-term relief but expectations need to be realistic when it comes to the willingness or ability of domestic markets to support large volumes of western rock lobster consumption, at prices competitive with export markets, throughout the rest of the year and during the years to come. There may be a ratcheting effect, now that many more Australians have taken the opportunity to try western rock lobster, and the profile of western rock lobster has been increased. However, the current and potential sizes of the local/domestic market are such that the long-term success of industry will continue to be dictated by developments in international markets (e.g. a resumption of trade with China, and/or the successful development of alternative international markets).

⁸ It should be noted that the pivot to domestic markets presented a challenge to processors in regards the requirement for a different (i.e. more diversified) product mix, and the need to manage the distribution of product in a changed market environment. Future required investment, should the focus on domestic markets continue, will ultimately affect industry as a whole.



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