Darwin Seafood Processing Facility Scoping Study

November 2020

FINAL REPORT

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Executive Summary - Background

The Purpose of this Project

There is currently limited seafood processing in the NT with the majority of NT seafood sent to southern states for processing. As a result there is significant value that is not being captured in the NT.

The NT Government (NTG) and the NT seafood industry identified that an assessment was needed on if and how the NT could retain more value from seafood products harvested from within the NT.

This scoping study therefore sought to understand the potential for value-add processing of seafood in the NT.

The scoping study also aligns with a broader strategic agenda of government investment in industries and jobs to grow the NT economy, particularly in the wake of COVID-19 pandemic.

Our Approach to this Project

1. Market Assessment

The first phase of the project involved primary and secondary research to establish a position on and market assessment of the current market demand and priority products including supply chain considerations.

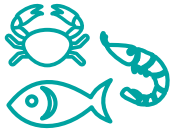
2. Concept Development

The second phase assessed the interest in a processing facility and what the best strategic approach to the development might be. We also researched and consulted to unpack the possible constraints on the establishment of the facility.

3. Pre-feasibility Review

The third phase involved analysis on what a seafood processing facility in Darwin should look like. This report to the NT Government highlights the potential opportunities, likely minimum requirements and provides a clear path forward on next steps.

Project Findings – Phase 1 Market Assessment



A well-established fishery

The NT wild-catch fisheries are well-established across a range of valuable species. There is good potential for aquaculture expansion.

Change will be a challenge

Industry was supportive of the processing concept. However, NT seafood processing is not well-established and will require significant changes to industry operations and culture.

Export opportunities are there

There are clear export opportunities for high-value, high-quality seafood products, particularly in Asia. The NT has a strong reputation it can leverage.

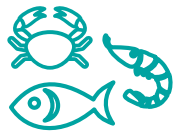
Volume constraints are a key consideration

The volume of production from the NT's fisheries is small compared to domestic and international standards, which is a key limitation in assessing the potential for any seafood processing facility.

Supply chain limitations exist and should be expected to persist

The limited volumes arising from the NT also create supply chain challenges for the seafood industry. Backfilling trucks to interstate remains difficult for all NT agri-business industries, and there are challenges with airfreight loading and air-route availability more generally for seafood exporters. Shipping will continue to be unfeasible based on limited volumes.

Project Findings - Phase 2 Concept Development



There are strategic market opportunities for the NT industry

We assessed a range of key fisheries and found a number that were very attractive or attractive for processing with markets with significant or high potential financial returns.

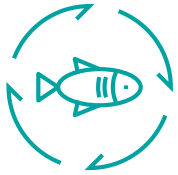
Potential sites are available, each with a range of advantages

There are a number of strong potential sites available or potentially available for a processing facility in Darwin. This includes both at Frances Bay and potentially at the airport. However, broader industry infrastructure needs may also need to be considered to support any best-practice processing facility.

Site selection and industry infrastructure risks must be strongly considered

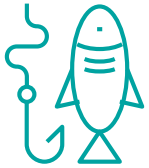
Like any project being developed or considered, a range or risks need to be considered and mitigated. The most significant potential risks relate to selecting an unsuitable site that is costly to develop or constrains development, and the broader issue of infrastructure needs faced by the existing wild-catch industry and its home at Frances Bay.

Project Findings – Phase 3 Pre-Feasibility Review



Targeted processing is the preferred development scenario

Through KPMG analysis and workshops with stakeholders, the priority development scenario was identified as a targeted processing facility focusing on high value, high quality, low volume species that have strong export markets.



Industry should drive the development

Feedback from stakeholders identified that a seafood processing facility should be market and industry driven with NTG unlikely to have any role in the facility. There is potential for a co-operative model for industry participants, but that is not viewed as necessary. NTG and NT Seafood Council (NTSC) may have a co-ordination role on pursuing next steps.

Potentially feasible production scenarios

Species identified as the best strategic choices for a targeted facility included swim bladders from Black Jewfish and Barramundi, Pearl Meat, and Trepang. Niche product development (filleting, smoking & marinating) should be made available for Barramundi, Black Jewfish, and possibly shark.

Potential commerciality

High-level assessments of the potential production and costs indicate that the commercial feasibility of a facility could be marginal if capex costs are significant. The most attractive commercial scenarios will involve development on a pre-existing site, commitment from producers of the core high-value species to be processed at the facility, and attracting loan or financing support.

Start small, think big

We have recommended a horizons approach to development of any facility. The likely commercial realities – low volumes, limiting capital costs – mean that this project should aim to be established with a minimal cost profile before aiming to grow in profile, scope and size in the years thereafter.

Project Findings - Next Steps

Getting to a business case

There is significant support within the NT seafood industry for the development of a Darwin seafood processing facility. With the right strategy, there is potential for this facility to become a reality.

We have identified production scenarios based around focusing on high-value, low volume, high quality products that are mainly export focused – in particular Black Jewfish and Barramundi (wild-caught) bladders, Pearl Meat, Trepang. There are also a range of other species that could be smoked, marinated and turned into high-value niche products.

The viability or otherwise of any facility cannot be assessed until a specific, defined project is agreed. Deciding on a location, gaining agreement from a key user group, and that group agreeing a defined business model are the crucial next steps. If and when completed, a business case should then proceed. Our high-level indicative analysis in this report shows there is a potential for a commercial project.

Based on the potential identified in this report, we believe NTG and NTSC should continue to co-ordinate and facilitate the discussions required to continue to move forward with a potential high-value, low volume, high quality product and export focused facility.

Your Path Forward

Our key project development recommendations are in the final chapter, structured over horizons to enable project planning and strategic assessment.

Additionally, we believe that three other important strategic considerations arise for the NT Government and the NT seafood industry from this report.

Firstly, the development of the seafood processing facility would be an ideal opportunity to build not only industry resilience and vibrancy, but to also drive forward a cultural shift. Our conversations and consultations with seafood producers and the NTSC – both of whom were exceedingly generous with their time and with sharing their knowledge – identified that the industry is working hard to be better aligned to best practices. A seafood processing facility will promote the uptake of practices that promote consistency and quality of product, higher standards, greater export orientation, industry co-operation, branding co-development, and research and development thinking (and spending).

Making progress of any of those features will assist with the sustainability of the NT seafood industry; doing them all – as a whole industry - could be transformative.

Secondly, it is clear to us from the NT Government stakeholders we have worked closely with, and from the NT seafood producers we have listened to, that there is a strong future focused vision for processing. However, progressing the development of a viable seafood processing facility should not be taken for granted.

There is a need to manage expectations around the potential scale and timeframe of any development. The NT seafood industry is small compared to many NT primary production industries, and it is small compared to the respective seafood industries found in other states. A Darwin seafood processing facility should therefore be premised on recognising that smaller volumes, targeted species, targeted products, and low costs should be prioritised. The clear aim must be project viability ahead of large-scale development or industry-wide processing.

Similarly, the vision of ancillary retail and tourism developments – in particular a co-located retail seafood market – should remain long-term objectives; but the reality is that there are insufficient NT volumes to justify or underpin the construction and operation of a large multi-use development which would incorporate a processing facility. There remains the possibility that private investors separately undertake activities (e.g. a new fish market) which would align with any future processing facility.

Finally, this report notes that additional or ancillary support could be considered for the NT seafood industry including specific infrastructure needs. There will be challenges in developing a business case for those infrastructure developments, and with any processing facility business case, due to the lack of current, clear data on all aspects of the industry, but particularly the social and economic impact of the industry – something recognised by producers and by many other stakeholders we spoke with. Better understanding the full value of the industry to our Territory community could assist with all strategic decisions related to a processing facility – and help support investment in the industry going forward.

Recommendations Summary

Developing a Darwin Seafood Processing Facility will require a staged approach. Our recommendations highlight three horizons for development. Most importantly, the first horizon will require selection of a location and formation of a key user group which we recommend to be drawn from the businesses who have significant market share in the target species best suited for a high-value, high-quality, low volume facility. At that point, a business case should be developed to understand the likely viability of the processing concept for those businesses. The NT Government and industry may have a role to play in facilitating and encouraging the formation of a business group to undertake the next steps, and in supporting broader industry development and needs.

Horizon 1 (short term < 3 years) Establishing new business model and core capabilities – BUSINESS CASE DEVELOPMENT	
1. Site selection, investigation and due diligence	5. Facilitate approvals & development
2. Develop governance structures	6. Traceability & product assurance
3. Activate industry participation	7. NT Seafood Brand
4. Attract investment or finance	8. Economic Impact
Horizon 2 (mid term 3-6 years) Build, start and grow the facility, focus on core strategic opportunities in defined markets and products	
1. Construct facility & enabling infrastructure	4. Secure market access, offtake & customers
2. Secure supply & volume of target species	5. Contract or facilitate management or services
3. Procure technology, equipment & labour	
Horizon 3 (long term >6 years)	
1. Expansion of production capacity	6. Drive efficiency gains in production processes
2. Expand product options	7. Examine integration of aquaculture
3. Integration of new species	8. Sponsorship of technology development
4. Expansion to support all of Northern Australia – WA and QLD catch	9. Expansion of co-located ancillary businesses
5. Targeting and opening new markets	10. Consider diversification or sectorial acquisitions

Introduction and Objectives

Project Context

As part of the economic recovery from the impact of COVID-19, the Northern Territory Government is taking a "Jobs First" approach and prioritising investment in projects that create jobs, upskill workers, working with industry to grow private enterprise, and securing future private investment.

In response to the economic shock of COVID-19, the NTG green paper **'Operation Rebound'** identifies the Northern Territory's potential to be a Jobs First economy that is **$40 billion** by the end of this decade.

The five focus areas of the rebound strategy are:

1. Securing investment to create long term jobs
2. Sustaining our population and the liveability of the Territory
3. Supporting Territory businesses to keep existing jobs and create new jobs
4. Driving industry growth and resilience in our supply chains
5. Mobilising the full resources of government

A number of immediate Rebound initiatives have been identified, with **the following initiative being a driver for the seafood processing scoping study:**

"Establishing regional fresh produce supply chains to maximise returns and scope processing opportunities to capture value"

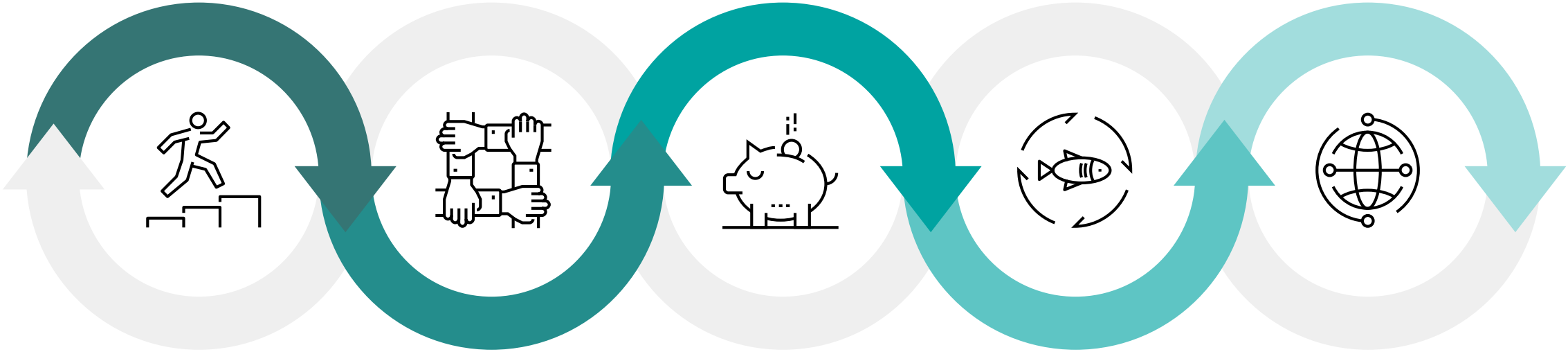
Territory produce is highly prized for its product integrity and quality, supported by strong biosecurity systems. Horticulture and seafood products from the Territory are mostly transported to southern markets through established supply chains. Local supply chains need to be developed to maximise returns to farmers and provide local food into regional areas. There is an opportunity to capture value and maximise usage of secondary produce in the Northern Territory through the establishment of processing facilities.

Source: Green paper on Operation Rebound, Northern Territory Government. KPMG analysis.

Project Objectives

The Department of Industry, Tourism and Trade is seeking to investigate the potential development of a new common user seafood processing facility in Darwin. The scoping study aligns with a broader strategic agenda of government investment in industries and jobs to grow the NT economy.

Scoping Study Objectives



Growth

drive economic growth through opportunities to enhance local businesses and providing new ongoing jobs for Territorians

Opportunity

increased opportunities for fishing operators to improve productivity and expand value add products for local and export markets

Investment

support further economic development through private investment

Sustainability

support the development of economically and environmentally sustainable fisheries

Export

further promote and develop Darwin as a gateway to Asian markets.

Strategic questions underpinning our approach

The following three-phased approach was used to address key strategic questions, drawing on inputs from stakeholder consultations and desktop research, whilst working iteratively with the Department of Industry, Tourism and Trade.

OVERARCHING QUESTION

Is there potential for development of a new common user seafood processing facility in Darwin?

KEY STRATEGIC QUESTIONS

PRODUCTS AND MARKETS

What are the current markets for processed seafood and what would an NT entry into those markets require?

CONSTRAINTS

What are the constraints that need to be considered with respect to any plan to establish this facility?

COMMERCIAL VIABILITY

Could an NT common user seafood processing facility be expected to be commercially viable and sustainable?

DELIVERY PHASE

Market Assessment

Concept Development

Pre-feasibility Review

MODULE OBJECTIVE

Analyse market demand for priority products. Understand supply chain and freight requirements.

Assess interest in a common user processing facility. Identify constraints to establishment of the facility and possible courses of action to overcome.

Identify if there is a potential opportunity to extend the value chain for local NT producers through a potential common user model. Define minimum commerciality requirements, potential incentives to attract investment and operating models.

Market Overview

Market Assessment Summary

NT ECONOMIC CONTEXT

Economy is heavily linked to **mining, construction, manufacturing, government** and **community services.**

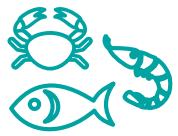
The Territory is a **net exporter** with a **small labour force**.

As part of the **economic recovery from COVID-19**, the Northern Territory Government is taking a "Jobs First" approach and prioritising **investment in job-creating projects, upskilling workers**, working with industry to **grow private enterprise**, and securing future **private investment**.

MARKET INSIGHTS

The Northern Territories' wild catch fisheries are **well established** and **growing in value**.

Aquaculture production in the Northern Territory is largely driven by **Barramundi** and **Pearl** production but has significant scope for **future growth** and **diversification**.



The most valuable species include **Barramundi, other Finfish, Mud Crabs, Mackerels, Goldband Snapper** and **Prawns**.

Emerging species for commercial production include **Trepang, Pearl Oyster Meat** and **Black Jewfish**.

STAKEHOLDER INSIGHTS

Quality is the priority amongst stakeholders and it is widely regarded that any processing negatively correlates with quality.

Cultural challenges with multiple stakeholders expressing a view of '**this is how we have always done it'.**

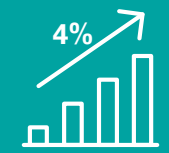
The 'Northern Territory' has a brand for being an area that is **natural, organic and expansive.**

There are understood and identified opportunities for **Trepang, Pearl Oyster Meat** and a **desire to be more progressive Black Jewfish.**

Australian Seafood Industry Overview

The Australian fisheries and aquaculture industry is a significant industry, contributing $3.18 billion in 2018-19 to Australian GDP. Employing 17,000 people in wild catch and aquaculture operations, every state and territory contributing. Aquaculture represents approximately 44% of total Gross Value of Production.

Australia's total
seafood production
271,105t
An increase of 4 per cent YoY.



Value add within
the Australian seafood supply chain
$5.3 billion
Of final consumption seafood.

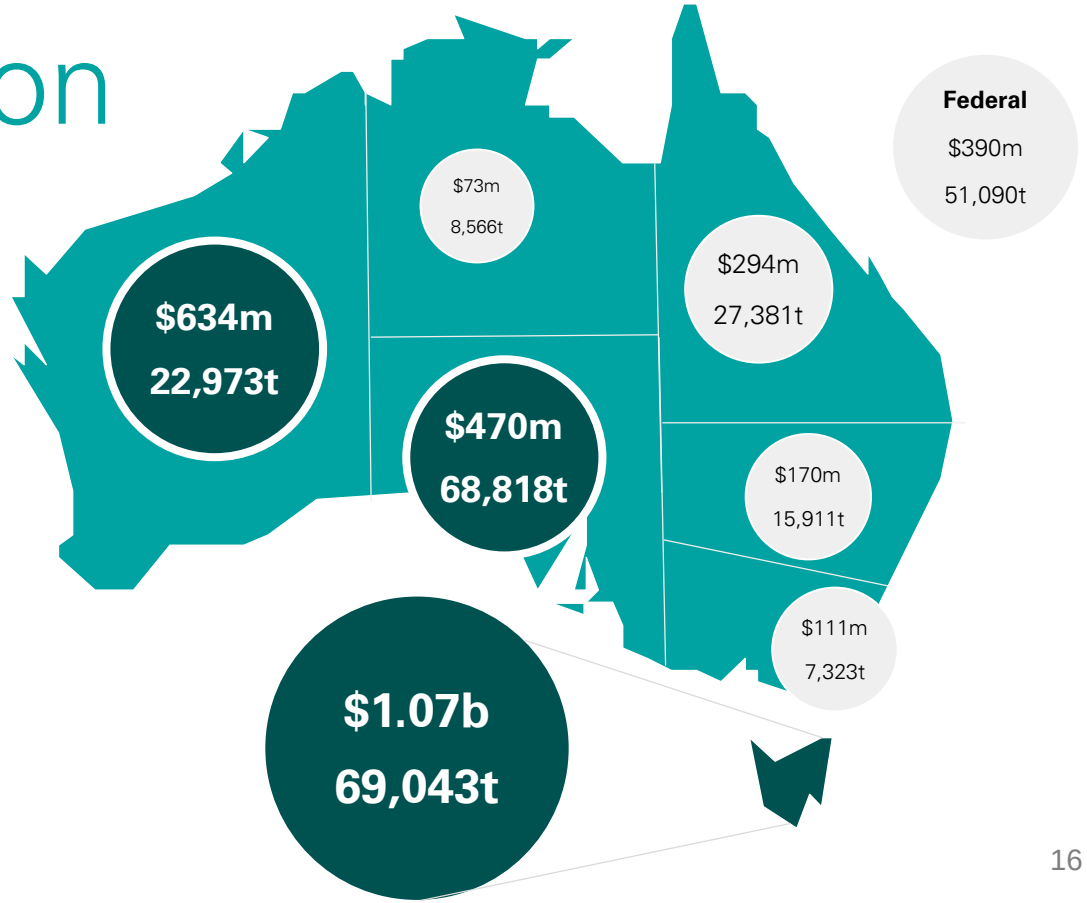
65% of seafood
consumed in Australia is
imported

Three species represent almost
two-thirds of production
values (salmonids, rock lobster, prawns)

Australia's total production value of seafood is

$1.42 billion

A year-on-year increase of 5 per cent



Tasmania, Western Australia and South Australia Produce more than two thirds of seafood by value.

Source: 1. Australian fisheries and aquaculture report 2018. Available here. 2. ABARES available here. KPMG analysis.

Australian Seafood Processing

Australian seafood processing is a $1.1 billion industry that has grown at a consistent level for the past five years. It is forecast to grow at 4.5 per cent over the coming 5 years. Three players consolidate approximately 64 per cent of seafood processing.

Australian Seafood Processing Trends

Over fishing, climatic conditions & disease reduce stocks

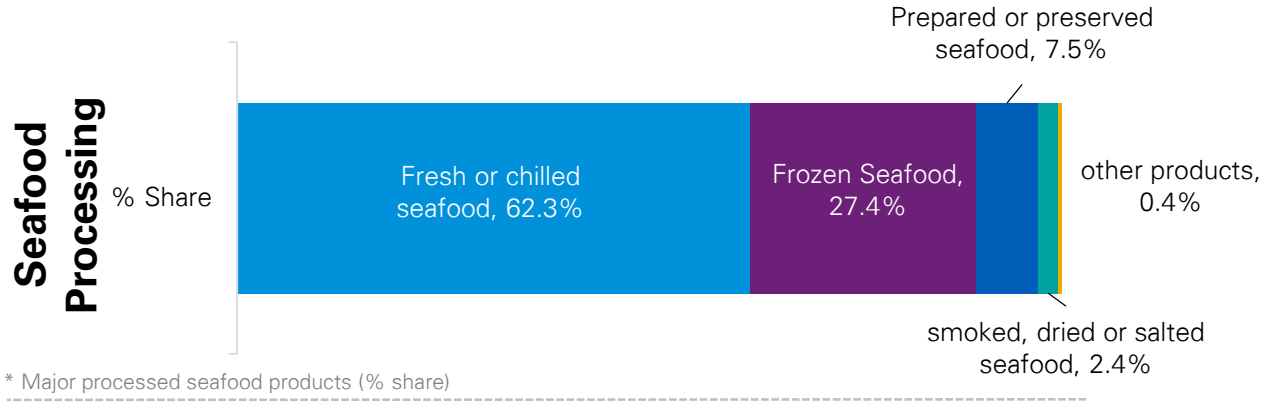
Long term sustainability of the industry is questioned

Large firms are increasing automation

International trade presents new opportunities

Strong export opportunities particularly in Asia

Industry is accelerating innovation



* Major processed seafood products (% share)

Drivers

Rising imports have reduced requirement for Australian processing

International trade is a key driver for seafood processing

Downstream nodes (e.g. supermarkets) **preference lower costs** from imported seafood

Utilisation of **technology** and **automation** support scaling processing

Weaker AUD has increased Australian competitiveness in export

Source: IBIS world, Australia seafood processing industry. Accessed July 2020. KPMG analysis.

Seafood Consumption Trends - Domestic

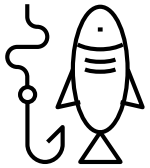
Australia is a net importer of seafood with domestic sales dominated by supermarkets.

95%
of Australian's eat seafood

Australia's **domestic consumption** of seafood reached

341,000t

in 2017-18



Fresh seafood accounts for

49.4%

of the value of seafood sales in major supermarkets. **Frozen product** represents **25.7%**; **tinned** and other ambient products make up **24.9%**.

65%
of seafood consumed is imported

Supermarkets dominate seafood sales

60%

of consumers most frequently buy seafood from supermarkets (57% in 2016).

Consumers are conservative and narrow in their seafood choices

76%

of consumers usually buy the same type of seafood every shop

Changing attitudes and behaviours of consumers purchasing from supermarkets will be necessary to see any shifts in the total market for domestic consumption.

Sources: 1. Unpacking the consumer seafood experience a 2019 update June 2019, FRDC. 2. Australian Seafood Trade and Market Access, FRDC, available here. KPMG analysis.

Seafood Consumption Trends - Export

Seafood is an increasingly traded and globalised commodity, with Asia being Australia's major export destination.

Australia represents **0.2%** of global seafood supply

$1.6b Export value of Australian seafood

Total seafood export **value** grew **10%** in 2017-18 to $1.58 billion

The **volume** of exports decreased by **1%** with a decline in lower value Finfish species

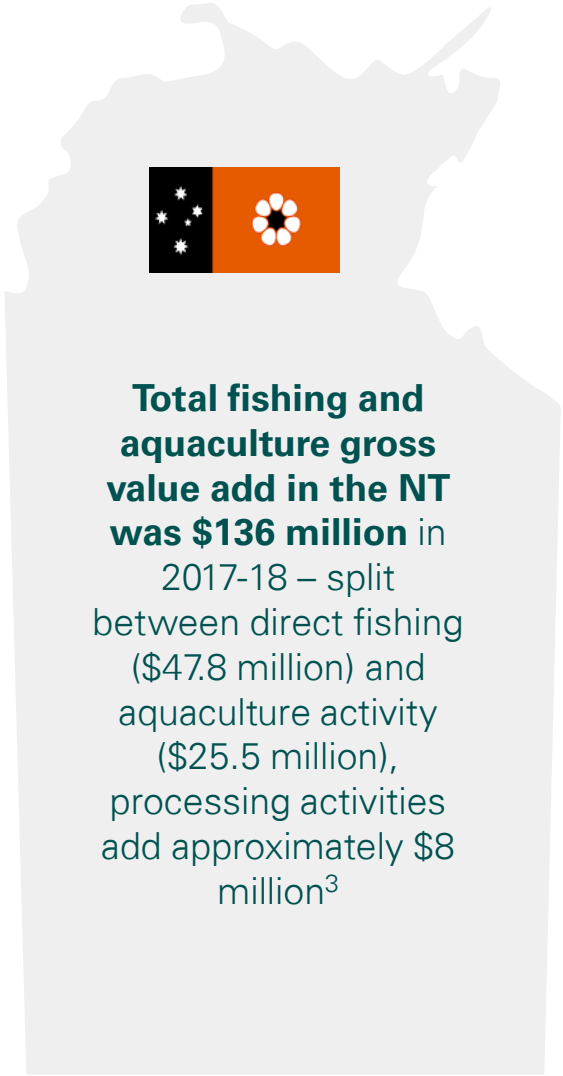
China, Vietnam, Japan and Korea accounted for **85%** of Australia's seafood exports in 2017-18

Market consolidation occurs with high reliance on specific markets that are dependant upon the species (Rocklobster to China, Tuna to Japan)

Australian seafood export growth is supported by the fast-growing seafood market in Asia and Australia's reputation as a reliable and high quality supplier.

Source: 1. Australian fisheries and aquaculture report 2018. Available here. 2. ABARES available here. 3. Australian Seafood Trade and Market Access, FRDC, available here. KPMG analysis.

Northern Territory Seafood Industry Overview



Total fishing and aquaculture gross value add in the NT was $136 million in 2017-18 – split between direct fishing ($47.8 million) and aquaculture activity ($25.5 million), processing activities add approximately $8 million[3]

Seafood is an important part of the NT's economy
The NT's commercial fishing and aquaculture operations inject $136 million into the NT economy each year, creating almost 940 local jobs.[4]
Additionally:

- For every 100 jobs in the seafood industry a further 57 jobs are created elsewhere and;
- For every $1 million produced by the seafood industry creates an extra $400,000 through related services such as fuel, repairs and equipment.

Diversified industries and opportunities
There are 11 main wild catch fisheries (with management plans covering an additional 4) and two major aquaculture operations. Expansions through Project Sea Dragon (prawn aquaculture) and at the existing Humpty Doo Barramundi farm will support the NT in having aquaculture projects that are internationally significant in their respective markets.

Gateway to Asia
Australia has key seafood markets in Asia, the Government is focussed on developing Darwin as the capital of Northern Australia and as Australia's gateway to Asia. Value-added processing of the NT's seafood resources has the ability to create local jobs and further the NT's advance into markets such as China and Vietnam.

Aboriginal Land Rights across 85% of the NT's Coastline
Expansive coastlines that cover more than 11,000 kilometres recognise that 85% of the NT coastline's intertidal zone is owned and controlled by traditional owners.

Northern Territory Fishery profiles (2017-18)[2]

Fishery	Species	Licences (#)
Coastal	Finfish and bait	78
Offshore	Mackerels, Sharks, Reef Fish	56*
Barramundi	Barramundi and Threadfin	14
Mud Crab	Mud Crabs	49
Other	Molluscs, Oysters, Trepang, Squids and Aquarium species	24
Aquaculture	Prawns	0
	Barramundi	1
	Others	3
	Pearl Oysters	4

*As a result of administrative changes in the Timor Reef Fishery and Demersal Fishery, both are now managed by individual transferable quota and no restrictions apply to the number of licences that can be issued or held.

Source: 1. DPIR Overview and Outlook 2016. Available here. Accessed July 2020. 2. ABARES, *Fisheries and aquaculture profiles*. Available here. Accessed July 2020. 3) ABARES, *NT Fisheries Sector* (link) KPMG analysis. 4. FRDC, NT Fisheries and Aquaculture 2017/18 economic contribution summary.

Northern Territory Wild Catch Seafood Production

Whilst comparatively small compared to domestic and international standards, the Northern Territories' wild catch fisheries are well established and growing in value.

The gross value of production (GVP) of wild caught seafood in the Northern Territory increased by 9% in 2017-18 reaching $47.8 million, outpacing National GVP for wild-catch at 3% in the same period[1]. Over the longer term, NT wild catch fisheries have experienced a compound annual growth rate of 5% over the ten year period to 2018.

The main wild catch fisheries operating in the Northern Territory are:

- Aquarium
- Barramundi
- Coastal Line
- Coastal Net
- Demersal
- Mud Crab
- Offshore Net and Line
- Spanish Mackerel
- Timor Reef
- Trepang (sea cucumber)

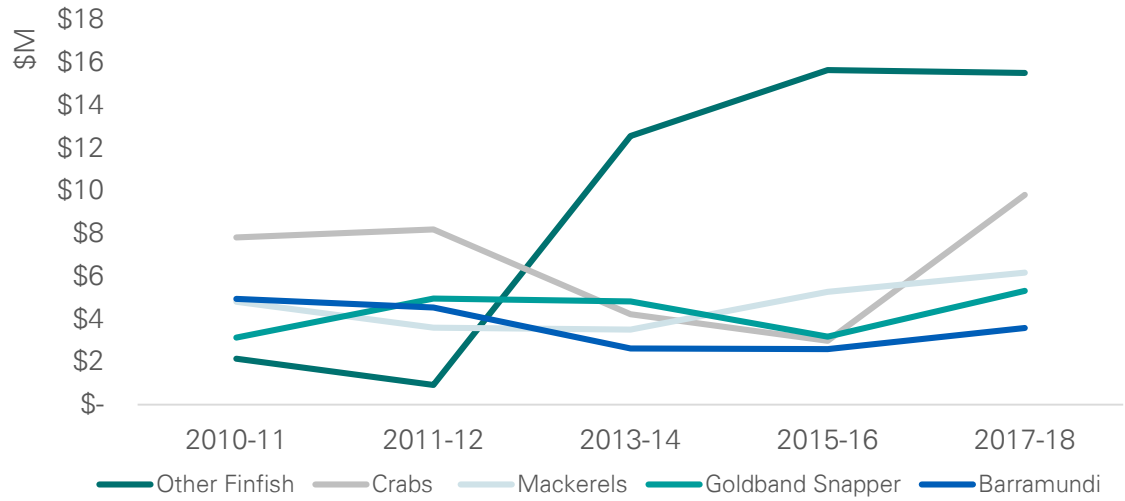
The Northern Prawn Fishery, a Commonwealth Fishery, also operates in the NT, WA and Queensland[2].

There has been significant growth in the value of other finfish. These species were worth $15.5m in production value in 2018, with only a modest increase in volumes. Mud Crabs are also a high value species for the territories wild catch production, at $9.8m in 2018. The rise in value for this product has offset the decline in volumes over the past ten years.

Note: CAGR – Compound Annual Growth Rate. **Source:** 1. Australian fisheries and aquaculture production 2018, Australian Bureau of Agricultural and Resource Economics and Sciences.(ABARES) (Published April 2020). 2. The value and volume of Commonwealth fisheries is not included in this analysis KPMG analysis.

Note on table left:
*Other Finfish includes Eels, other native Finfish and Aquarium species.

Top 5 seafood products by value for the Northern Territory (excl. aquaculture)[1]



Value, volume and growth rates for key Northern Territory seafood species (excl. aquaculture and Northern Prawn Fishery) 2018[1]

Species	Value ($m) (10yr CAGR)	Volume (tonnes) (10yr CAGR)
Other Finfish*	$15.5 (+38%)	3,422 (+9%)
Mud Crabs	$9.8 (+6%)	192 (-6%)
Mackerels	$6.2 (+4%)	1,002 (+5%)
Goldband Snapper	$5.3 (+3%)	598 (-6%)
Barramundi	$3.6 (0%)	327 (-7%)

Northern Territory Aquaculture Production

Aquaculture production in the Northern Territory is largely driven by Barramundi and Pearl production but has significant scope for future growth and diversification.

The major aquaculture activities for the NT include Pearl Oyster (*Pinctada maxima*) culture and Barramundi farming (*Lates calcarifer*), in addition to a number of other species.

- ***Barramundi*** in aquaculture operations is a key contributor to volume and value of seafood produced in the NT. In 2017–18 the value of aquaculture Barramundi was $22.8 million. Expansion in Barramundi aquaculture has been enabled due to advances in technology, economies of scale and increasing demand for the species.
- ***Pearls*** from Pearl Oyster aquaculture contribute significantly to the value of aquaculture production in the NT[1], but production values cannot be disclosed for confidentiality reasons and this distorts the value of aquaculture in the Territory.
- ***Other products*** include sea cucumber (Trepang), giant clams and freshwater plants. Sea cucumber 'ranching' occurs on Goulburn Island and Groote Eylandt, with hatchery-produced juveniles used to restocked suitable areas at sea.

There are only a limited number of companies in the NT aquaculture sector with Humpty Doo Barramundi being the most significant producer, and Seafarms being the biggest potential producer. .

Sources:

1. Australian fisheries and aquaculture production 2018, Australian Bureau of Agricultural and Resource Economics and Sciences.(ABARES) (Published April 2020); 2. Northern Australia Aquaculture Industry Situational Analysis (Project A.1.17.18119), CRCNA, (Published May 2020); 3.Profiles of Australian fisheries and aquaculture in 2016–17 and 2017–18, ABARES. KPMG analysis.

The value of aquaculture production in the NT decreased by 26% in 2017–18 to $25.6 million[1] following a higher than average production value of $34.4m 2016-17. Over the longer term, the value of aquaculture in the NT grew by 2% from 2008-18.

Despite the low growth in this emerging sector, confidence is strong.

Future planned expansions through Project Sea Dragon (prawn aquaculture) and at the existing Humpty Doo Barramundi farm will support the NT in having aquaculture projects that are internationally significant and able to capitalise on projected growth in demand for key species. For example, national farmed Barramundi production is anticipated to increase significantly from 4,100t in 2016-17, to 20,000t per annum by 2025[2] with the potential to experience a similar growth path to farmed salmon.

Northern Territory Fishery profiles[3]

Fishery	Species	Number of licences / endorsements	Major Players
Aquaculture	Prawns	2	seafarms
	Barramundi	1	Humpty Doo
	Others	3	Tasmanian Seafoods
	Pearl Oysters	4	Paspaley Pearling Company, Ellies

Export Market Scan - NT Seafood Export

The NT does not have well established seafood export markets, with the majority of seafood sold domestically. Increased maturity in regard to scale and freight access in the sector is required to improve the viability of export.

The majority of NT's fisheries and aquaculture production is sold to the domestic market, with available data suggesting **0.2% of the total volume of seafood produced in the NT is being exported.**

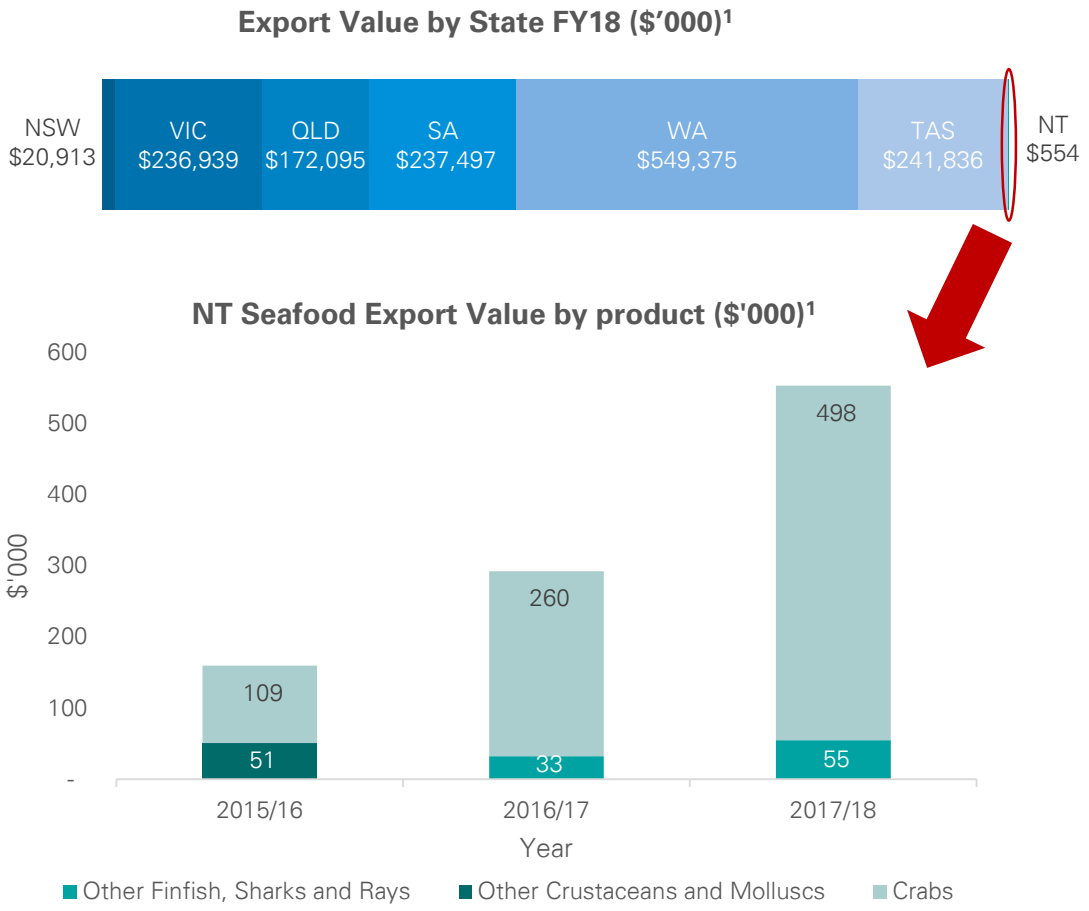
The NT contributes only **0.04% of Australia's total seafood export value**, in comparison to Western Australia (driven by high value rock lobster export) and Tasmania (driven by salmon exports). Australia's major exporting states highlight the need for a well established supply for product which ensures the scale required to establish freight routes and the prerequisite export licenses.

Volumes exported from the NT have increased significantly off a small base from 2015/16 - 2017/18 driven largely by Mud Crabs, noting that available data may not be comprehensive.

It is also common for NT seafood to be sent to major metro centres (e.g. Sydney, Brisbane) for further processing and export, rather than being processed and exported directly from the NT. This produce is identified and reported based on the state of export, distorting the data and adding supply chain complexities.

The NT has an immature export market compared to the rest of Australia. Relatively low supply volumes and freight links limit the current potential for export from the Territory.

Additionally, lack of available data on NT export locations and product types has significantly constrained the ability to prioritise markets with reference to size, growth rate, consumer trends, demography & market access. Given this it is assumed that the NT seafood industry must increase its maturity before export becomes viable for the majority of species and producers.



Source: 1. ABARES. KPMG analysis.

Export Market Scan - NT Trading status of Agrifood products

The NT has significant and long lasting trade relationships. The location of Darwin is highly strategic with key trading partners in Asia. The NT's primary industries and seafood industries contributed nearly 3% of total Gross State Product with a value of $735m in 2017.

The NT is connected to international markets with accessibility via sea and airfreight for export destinations and by road and air for the domestic market. Darwin's international airport and cold chain logistics facilities are expanding with new routes specifically for air travel providing emerging opportunities.

Key Agrifood products being produced and exported from the NT are:

- Livestock (live cattle exported predominantly to Indonesia, crocodile products primarily to European countries.
- Horticulture with mangoes, melons and other vegetables grown in the NT
- Fisheries with fin fish, corals and other aquaculture products

A particular consideration validated during stakeholder consultations was the acknowledgement that there are considerable volumes of product that is currently taken out of the NT, value add processed in other states for export from these states. The value of these products is recorded against other states GDP although production originated in the Territory.

Figure 1: Established export destinations for current trade for NT products

Supply Chain Analysis

Northern Territory Seafood Processing, Supply and Logistics

The majority of the Northern Territory fishing fleet is based in Darwin, but there are currently no facilities of significant scale to process or store significant seafood quantities in Darwin.

Further processing occurs at the point of catch on-board vessels that have been repurposed to maximise economic returns

No seafood processing facilities with significant scale

Current processing is limited to filleting, battering and crumbing seafood at a small scale with local operators (Mr Barra, Darwin Fish Market, Beta Beef and Reef, Austop)

High-volume fishers (Demersal, Timor Reef and aquaculture operators) send whole or frozen product to southern markets for processing

Value add processing occurs closer to markets to maintain fish quality

Current processing methods are reliant on access to labour, and constrained by lack of space on existing sites and by the lack of investment in equipment.

Source: 1. Oceanomics Infrastructure Report, 2019. KPMG analysis.

Seafood Supply Assessment

Whilst comparatively small compared to domestic and international standards, seafood production in the NT is established and growing in value.

- Wild caught seafood dominates the NT seafood industry. Sustainable stock levels and proper management mean there is scope for further growth in wild caught production.
- Future planned aquaculture expansions (e.g. Project Sea Dragon and at the existing Humpty Doo Barramundi farm) support the growth of the NT aquaculture industry, and an increase in volume of key species and the need for skilled labour.

Strengths

- Diversity in species and fisheries
- Both farmed and wild caught production supports diversification
- Wild caught species have sustainable stock status', with scope for further growth
- Investment in aquaculture projects (such as Project Seadragon) support large scale aquaculture in the Territory
- Stakeholder interest in continuing to grow
- The pearl fishery is a MSC certified fishery

Weaknesses

- Access to and availability of appropriately skilled workforce
- Lacking unified, marketable brand
- Price takers for the 'commodity' based fisheries
- Out of state owners do not necessarily keep the wealth within the Territory
- Higher cost of production (fuel, labour)
- Current Port Facilities do not allow for efficient access for unloading and re-supply of fishing operations.
- Lack of current data constraining decision making (e.g. fishery stock status)
- Lack of NT fish feed supply for aquaculture

Opportunities

- Increasing growth and interest in aquaculture, including R&D for new aquaculture species (e.g. giant clam, Trepang)
- Increase indigenous participation and traditional production methods
- Potential to develop new fisheries and/or expand current fisheries particularly aquaculture (e.g. Giant Clam, Oyster)
- Potential to harvest existing species using new techniques in new areas (e.g. Trepang aquaculture)
- Development of fish feed supply in the NT will support growth in aquaculture

Threats

- Competition from imported seafood products
- Security of resource access (access to both areas and species)
- Regulatory burden (including cost), including green and red tape particularly for aquaculture
- Biosecurity threats (e.g. white spot disease in prawns, invasive mussel species)
- Depletion of fish stocks and over fishing
- Social license and community concerns over the environmental impacts and sustainability of seafood production

Sources: Stakeholder Consultations. Status of key Northern Territory fish stocks report 2017 Fishery report no. 121. Northern Australia aquaculture situational analysis CRCNA, 2020. KPMG analysis.

Seafood Processing Assessment

A seafood processing facility has the potential to increase the value of seafood production for the NT, but there are a number of challenges that must be addressed for this to be realised.

- Seafood produced in the NT is generally sold with minimal processing, and processing often occurs closer to the end market.
- Value-added processing of the NT's seafood resources has the ability to increase the value of seafood production, create local jobs and further the NT's advance into markets such as China and Vietnam.
- There is currently limited seafood processing in the NT attributed to historical market fragmentation, lack of scale and technology. Cost competitiveness, lack of supporting infrastructure (e.g. cold storage) and access to skilled labour are also challenges that must be addressed.

Strengths

- High quality products
- Marketable products with clean and green image
- Close proximity to international markets for end product
- Access and availability of fresh water
- Government and industry support
- Mandated origin labelling for seafood only exists in the Northern Territory

Weaknesses

- Access to skilled/experience labour
- High operating costs (power, labour)
- Relatively low volumes of input and fragmented industry limits economies of scale
- High cost and lack of ancillary services
- Distance to market isn't favourable for seafood processing to support quality
- Fishers focussed on production and "how things have always been done" and do not see the potential value of processing

Opportunities

- Proximity to Asian markets reduces time to market, maintaining improved product quality and longer shelf life
- Leveraging "brand NT" and unique Australian / NT species as well as country of origin labelling
- Leverage supply chains and shared facilities with other industries that have complementary needs (e.g. agriculture, tourism)
- Automation and/or training to address labour shortages and costs and increase efficiency
- Alternative and emerging industry opportunities (e.g. niche processing, waste utilisation, technical training school)
- Australia's free trade agreements with China, Japan and South Korea give fisheries businesses a competitive edge in North Asia.

Threats

- Low cost processing overseas and interstate
- Consumers unable to differentiate NT product
- Extreme weather events
- Increase in power/fuel costs
- Reliability of supply due to seasonal conditions
- Lack of industry buy-in and/or competitive behaviour limiting cooperation
- Wage competition form alternative industries
- Regulatory burden (time, cost)
- Access to capital

Source: Stakeholder Consultations. Northern Australia aquaculture situational analysis CRCNA, 2020. KPMG analysis.

Seafood Logistics Assessment

Current logistics support domestic consumption of NT seafood, but investment in infrastructure is needed to increase cost competitiveness and capture value in export markets.

- The majority of seafood produced in the NT is sent to southern markets via road freight due to strong domestic demand. The lack of infrastructure (e.g. cold storage, all weather roads), economies of scale and geographic distance to these markets is eroding the potential value of NT seafood products.
- Darwin is uniquely placed to become Australia's gateway to Asia due to its proximity. This is currently limited by current infrastructure which is either lacking (e.g. large cold store facility, air freight capacity) or requires upgrades (e.g. Darwin port facilities).

Strengths

- Strong domestic demand supports direct links to key markets
- Highly efficient road freight sector
- Direct road routes to major capital cities to support domestic demand
- Low cost of freight to other states in comparison
- Less competitive road freight space given the NT is a net importer of food related goods
- Sound infrastructure with airport, port and road networks

Weaknesses

- Small product volumes and fragmentation of industry participants limiting economies of scale required to support freight routes and be cost competitive, particularly for air freight
- Geographically isolated
- Limited access to value add infrastructure
- Freight links disrupted by weather conditions in wet season, with investment needed in all weather roads
- Lack of cold storage for holding time sensitive products pre-transport
- Lack of availability of airfreight

Opportunities

- Backload to southern markets
- Little competition outside of mango season
- Closest Australian port to Asia
- Direct freight to major capital cities
- Cold storage capability at Darwin airport will enable product to be held and sold when market conditions are optimal

Threats

- Competition for road freight capacity to southern markets during mango season
- Increased fuel prices may impact cost competitiveness
- Time to market suits frozen goods but is unfavourable for highly perishable and highly valuable seafood

Source: Stakeholder Consultations. Oceanomics Infrastructure Report, 2019 . KPMG analysis.

Seafood Freight Assessment

ROAD

The NT road freight component is incredibly important for the import and export of all products from the territory. Road freight plays a critical role in supporting all industries and in particular, the cold chain logistics to transport seafood from Darwin to other key markets across Australia for both domestic consumption and export.

During stakeholder consultations, it was raised that there is a tendency for road freight operators preferring to operate 'empty' when coming back from Darwin with very little revenue to be made with products leaving the NT.

It has been noted with the increase in demand on the east coast for freight and with restricted movements from Covid-19, that the viability and allocation of road freight to support logistics may be preferred to the more profitable routes. Approximate costings for road freight include:

- Adelaide to Darwin is $500 per space*
- Darwin to Adelaide is $120 per space*

**Per space or crate reflects a pallet size on the truck. Pallet is roughly a metre by a metre. Not reflective of weight necessarily, it is by capacity of what a truck can hold.*

AIR

Airfreight is an essential component of seafood supply chains across Australia and provides significant opportunity for the Northern Territory.

With limited access to airfreight specific market routes and required wide body aircraft freight, market via airfreight is generally sent to other key locations (Brisbane, Sydney, Melbourne) for consolidation for export. This provides the opportunity for exporters to aggregate stock to support cost competitive exports.

The proximity of Darwin to key export markets is favourable, supporting freight movements via air is the development of new cold chain facilities and supporting infrastructure that will allow processed seafood product to maintain quality throughout the supply chain and entry to market.

Stakeholders also suggested that appropriate and careful handling of product into and out of aircraft has not always been available in Darwin, noting the recent export facility developers at Darwin Airport are now providing a commercial service aimed at addressing this issue.

SEA

The Darwin port is instrumental to the trade for Northern Australia. In 2018/19 the total trade through the port reached 2.43 million tonnes.

Darwin port is strategically located as the closest Australian port to our Asian trading partners. This "time to market" provides exporters from the NT with the opportunity of shorter distances and travel times to market.

The Darwin port acts as the key supporting hub for offshore oil and gas fields. With diversified export by sea, the port supports containers and general cargo, bulk liquids, bulk materials, live exports and heavy lift oversized cargoes.

There is limited export currently taking place from the port due to the limited volumes of the NT seafood industry and because sea freight requires frozen products. Anecdotally, there is limited prospect of economies of scale to filling sufficient containers to attract additional freight routes unless or until a large-scale aquaculture project occurs.

Source: Stakeholder consultations with Darwin Port, NT Airports and road freight operators.

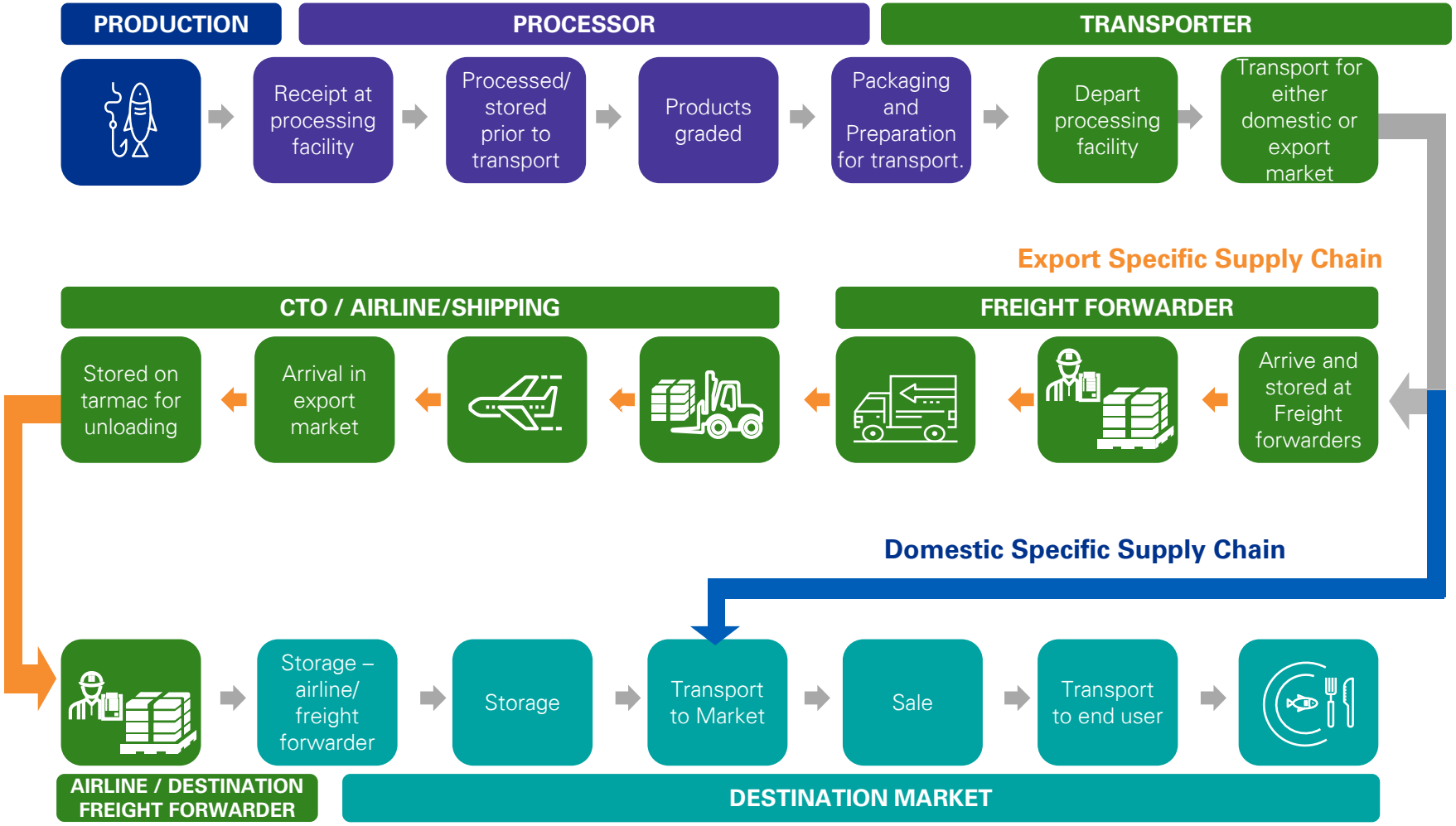
Seafood Supply Chain Map

The Australian Seafood Supply Chain for both domestic and export markets.

Our analysis and supply chain insight provides the following view of the seafood supply chain. The current export supply chain that has been communicated through stakeholder consultation has been the interstate transport and subsequent export from either Perth, Sydney, Brisbane or Melbourne prior to export.

It has been noted in consultations that:

- Trepang can travel as far south as Melbourne for processing before flying from Melbourne to Asia
- Consolidation for export via Darwin is limited by access to wide body aircraft
- Frozen fish do travel ex. Darwin port to Asian destinations



Source: Stakeholder Consultations. KPMG analysis.

Supply chain ex. Darwin to key destinations

Destination (domestic)	Journey time from Darwin (Air)	Journey time from Darwin (Road)
Sydney	4h 15m	39 hours (3,972km)
Brisbane	3h 35m	36 hours (3,424km)
Melbourne	4h 5m	38h (3,754km)
Adelaide	3h 35m	31h (3,030km)
Destination (export via Air - direct)		**Journey time from Darwin**
Shenzhen, China		5h 40m
Singapore		4h 30m
Destination (export via Sea)		**Journey time from Darwin**
Singapore		5 days, 6 hours (1887nm)
Hong Kong		6 days, 13 hours (2353nm)
Kuala Lumpur, Malaysia		5 days, 19 hours (2092nm)
Shanghai, China		7 days, 16 hours (2765nm)
Seoul, South Korea		8 days, 13 hours (3068nm)
Tokyo, Japan		8 days, 10 hours (3033nm)

All freight routes from Darwin are shown in Figure 1. The freight routes incorporate all Road (domestic), Air, and Sea freights Ex. Darwin.

**All routes were active prior to Covid-19, there may be changes following Covid-19 effects on the supply chain.*

Source: Flight information from flight connections (here); Stakeholder Consultations; KPMG analysis; Figure 1. Source: Darwin Port, *Strategic location*. Available here

Concept Development: Constraints & Requirements

There are a number of constraints and requirements that need to be considered in relation to the fundamentals of a seafood processing facility

Potential constraint	Key risk/issue
Government and Industry support	Lack of value-add in NT and limited employment.
Social licence	Risk for public perceptions affecting approvals and operations.
Facility and site specifications	Unfavourable sites will impact approvals, create uncertainty and increase costs.
Enabling infrastructure	Affects product quality and costs for producers.
Product requirements	Target products will have processing, storage, handling, transportation and export requirements.

Potential constraint	Key risk/issue
Environmental approvals	Ensuring compliance with and ability to get through environmental approval processes.
Blue Mud Bay negotiations	Negotiating settlement of the implications arising from the Blue Mud Bay decision for producers.
Regulatory	Compatibility with regulatory framework.
Financing	Mismatch of cost to investor or Government appetite.
Operational	Potential for productivity loss, labour shortages or lack of industry capability.

Each of these areas is covered in more detail within this section, with the exception of product requirements which is examined in the products in focus section.

Government and Industry Support

Government and industry are aligned in their support for the growth of the NT seafood industry. A significant objective of any facility is the job creation that would come with the development – both through construction, but more importantly through ongoing operations.

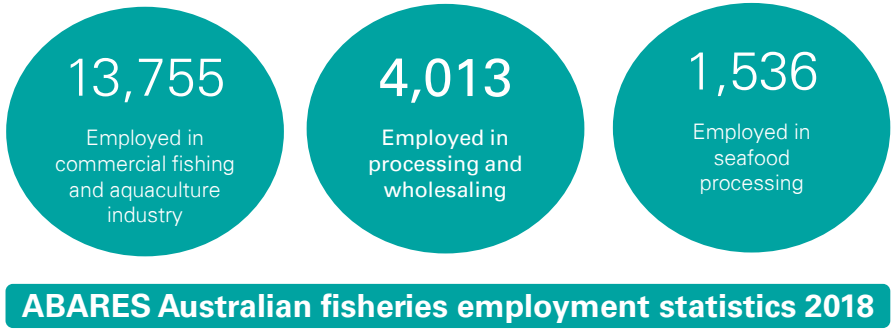
Job creation through a seafood processing facility project will be dependent upon the operational model developed. Nonetheless, there are some examples from elsewhere in Australia that indicate that there would be potential for operational jobs to be created through the facility.

However, there are not large numbers of Australians employed specifically in *processing* in the seafood industry. The Department of Agriculture's analysis of 2016 census data indicated that only 1536 people in Australia were employed in seafood processing – of which only 5 were located in the NT.

Importantly, fish and seafood wholesaling is an ancillary job creator that is often aligned with processing. The Department of Agriculture's analysis of 2016 census data shows that 2477 in Australia were employed in seafood sales and wholesaling which included 16 people in the NT.

The addition of a seafood market to any processing facility development could assist in creating more ongoing jobs and economic benefits. Recent analysis of the Sydney Fish Market, for example, found that it generated 3 million visits per year and made a $72 million contribution to state tourism. It's large-scale redevelopment is planned to support more than 700 ongoing jobs once completed.

Additionally, a broader view is being taken elsewhere in Australia where employment and career development pathways are being encouraged into the industry as a whole – wild harvest, aquaculture, processing, sales and administration. The Tasmanian Seafood Industry Council, for example, has created the Seafood Jobs Tasmania website to support career pathways, employment and training in the sector as a whole (see right for an example of career pathway mapping).



ABARES Australian fisheries employment statistics 2018

Source: Department of Agriculture (2018) (link); Career pathway map (link); Sydney Fish Market (link). KPMG analysis.

Social Licence

Though stakeholder consultations have been broadly supportive of the proposal for a Darwin seafood processing facility, risks were also identified relating to way such a facility could be perceived and or its effects beyond the sector.

OPERATING MODEL	• Value capture not in the NT • Exclusionary • Monopolistic actions	A number of stakeholders from the NT seafood industry noted that getting the operating model wrong would be viewed negatively by the industry. In particular, there is a concern to ensure the facility operates fairly, that the benefits of the facility stay in the NT and that the facility doesn't become leverage for a significant investor or owner to engage in unfair practices.
STAKEHOLDER ENGAGEMENT	• Bringing community on the journey • Alignment to other industries – tourism & recreational fishing	Stakeholders from across industry and government noted that support for the facility would likely be buoyed from any ability to include public-facing community uses – for example, fish markets, or aligned restaurants and hospitality businesses. Similarly, the facility's ability to link into the existing tourism and recreational fishing markets could drive visitation and use.
TRACEABILITY	• Protecting NT brand and reputation • Visibility of supply and distribution	All agri-food industries and increasingly confronting the need to ensure the integrity of their products and brands. The NT's fisheries and natural environment are viewed as clean and pristine. Any processing facility will need to operate in a manner that upholds that reputation – and further, consumers increasingly demand trusted and verified products and even traceability systems that provide that assurance.
SUSTAINABILITY	• Best practice fishery management always helps. • Certain species attract more attention from public and community stakeholders	Some stakeholders indicated that community or public concern have arisen in the past in southern fisheries related to 'factory fishing'. Based on the current size and management of NT wild-caught fisheries, such practices are very unlikely to arise in the NT. Certain species, however, will naturally attract more public attention than others (possibly, for example, Shark) and their processing and development would need to be carefully managed.

A social licence to operate means being viewed as trusted and responsible. Common risks to a social licence to operate include:

- **Lack of local and community partnerships**
- **Making a negative contribution to community – such as acting unreasonably**
- **Breaching laws, regulations, community standards or expectations**
- **Lack of social investment – jobs, skills and industry development**
- **Lack of participatory processes and community consultation**
- **Ignoring or deprioritising sustainable development**

Source: KPMG analysis.

Facility and site specifications

The site assessment chapter contains details on some of the advantages and disadvantages of potential sites. Additionally, the cost of construction or use of a facility of this nature needs to be considered. Recent construction and land use costs for similar (though different) storage and export facilities will be a guide:

HIGH LEVEL INDICATIVE ASSESSMENT BASED ON DESKTOP ASSESSMENT

	Capital cost	Size	Facilities
NT – NT Airports Multipurpose Facility (Darwin, completed 2020)	$15 million	6,250m^2	Cold store, freight, handling, training, storage and export handling.
WA – Welshpool Live Lobster Export Facility (Welshpool, completed 2019)	$23 million	4,000m^2	Live lobster facility (1,200 tonnes of refrigerated seawater), storage and export handling.
WA – Ocean Grown Abalone Facility (Augusta, completed 2019)	$3.4 million	Unknown	Purpose-built export standard storage and processing facility, including live tanks, freezer and chiller room.
TAS – Huon smokehouse and product innovation facility (Parramatta Creek, completed 2015)	$12 million	2,500m^2 of value add salmon processing 750m^2 administration to the site	The smokehouse and Product Innovation Centre marked a $12 million investment while the consolidation of infrastructure was forecast to save $1 million in processing in Year One. The centre produces up to 14,000t of head-on-gutted fish a year.

Source: KPMG analysis of stakeholder reports

Enabling infrastructure

For a seafood processing facility to be successful, additional enabling infrastructure on and off-site could potentially be needed. A seafood processing facility needs to be logistically integrated to the production and landing of the Territory's wild caught products.

The 2019 Oceanomics report on NT Fisheries Infrastructure, which was commissioned by the NTSC and completed in partnership with the NTG, identifies a number of relevant constraints to fishing infrastructure in the NT. With respect to the Darwin area this includes:

- **Mooring Basin Service Wharf**: the lack of cover on the Duckpond wharf is detrimental to product integrity and efficiency. Exposure to the sun, heat and heavy rains are clear risks.
- **Fisherman's Wharf**: used during servicing of the Mooring Basin Service Wharf, suffers from the same lack of cover creating risks.
- **Duck Pond congestion**: congestion at peak times due to being restricted to 3 large vessels offloading simultaneously, only two lines of truck staging and limited hard-stand areas. The wharf is multi-purpose used for both unloading and servicing creating congestion and risk to products and people.
- **Duck Pond servicing and upkeep**: with one lock-gate, annual servicing has a significant impact. Unplanned events (such as cyclones) could cause damage and result in significant operational disruptions.

Product deterioration from weather or climate, the inability to move product quickly off the wharves, and extended disruptions to fishing or landing are all significant risk factors for any seafood processing facility in Darwin.

The 2019 Oceanomics report on NT Fisheries Infrastructure states that enabling infrastructure to remedy these issues by:

1. Adding cover to the Mooring Basin Service Wharf, at an estimated cost of $0.5 million.
2. Installing a spare lock gate, at the estimated cost of $1 million.

It is understood that fisherman are currently using their own temporary marquees – something both inefficient and potentially dangerous in the event of them being blown or inadvertently collapsing/failing.

Stakeholder consultations noted that there would be some complexity in how the covering of the wharf could occur as the area is used for servicing boats as well as unloading. Consultation, design and engineering work and studies would be required to ensure any improvements are fit for purpose and don't have unintended consequences.

A longer-term view might be taken that a better solution would be to build a new fit-for-purpose wharf on the other side of the mooring basin, adjoining the Gobi Desert site. It is understood that NTG's Department of Infrastructure, Planning and Logistics is aware of the possible need and stakeholder support for such a proposal. Further analysis providing an economic business case for that investment – either in relation to the NT seafood producers needs or more broadly as part of any major redevelopment at the Gobi Desert site – could be considered by Government.

Extending, enlarging or widening the mooring basin would likely also be welcomed by industry. However, there are potential construction and environmental issues which may arise through disturbing the mooring basin itself (such as through dredging) so the scope for such works may be limited.

Source: Oceanomics Infrastructure Report, 2019. KPMG analysis. Photo from https://nt.gov.au/news/2015/frances-bay-precinct-revitalisation

Environmental approvals

Each project and location will drive different potential affects on the environment. Locations in pre-existing industrial locations, or where land-clearing has already occurred, will likely on balance to raise less potential risks. On the other hand, potential seafood processing operations in or close to residential areas, or in areas within or too close to sensitive land uses or environments, will likely on balance increase a number of potential risks.

Nonetheless, a seafood processing facility in any location raises a number of potential environmental risks for consideration including:

- **Waste management** – for example waste such as refuse from processing
- **Odour and air quality** – from either the products, waste or processing itself
- **Noise** – from either operations or from transport / activity around the facility
- **Amenity** – affect on nearby residents or land users
- **Water** – this includes water use or consumption, and management of stormwater and effluent
- **Health and disease management** – particularly the management of catastrophic or emergency events (e.g. if power at the site fails for an extended period) or disease outbreaks
- **Light** – light can be an issue with 24-hour operations
- **Pollution** – a facility close to coastal areas has the potential to affect sensitive marine environments through pollution
- **Energy and emissions** – energy consumption and greenhouse gas emissions are both increasingly strictly monitored and limited

Project development in the Northern Territory is subject to the Environment Protection Act 2019 and the Environment Protection Regulations. This creates a regulatory system to assess the environmental impact of proposed developments within indicative timeframes.

The Department of Environment, Parks and Water Security indicate that the environmental impact assessment and approval system has five key stages:

1. *Pre-referral* – proponent makes a self-assessment on whether their project requires referral and consults with potentially impacted communities.
2. *Referral* – the NT EPA identifies whether an environmental impact assessment, and the level of assessment, is required.
3. *Environmental impact assessment* – there are four methods or tiers of assessment dependent on the NT EPA's information requirements, level of risks and potential impacts and complexity of the project.
4. *Environmental approval* – the Minister decides to issue or refuse an environmental approval with appropriate conditions.
5. *Post environmental approval* – the proponent (environmental approval holder) must comply with the conditions of the environmental approval. The CEO is responsible for monitoring compliance with the conditions and undertaking enforcement action where necessary.

The environmental impact process is now governed by tiered methods of assessment which aim to drive different approaches to projects based on their complexity and likely impacts. compared to whole), and the speed of delivery.

The level of assessment required for a seafood processing facility in Darwin is a risk (particularly regarding development time and cost) that would be considered by any proponent or investor.

Source: KPMG analysis.

Environmental approvals - estimated timelines

All timeframes are specified in business days

NOTES:

Tier 1 - Assessment on Referral Information
Tier 2 - Assessment by Supplementary Environmental Report
Tier 3 - Assessment by Environmental Impact Statement

- Documentation is published at each stage of the assessment process.
- Reasons for decision are also published at each decision point.
- Legislative timeframes are expressed as business days.
- Public comment - * indicates set period that NT EPA may extend only with agreement.
- Range of 30-60 business days (determined by NT EPA) applies to public comment on draft EIS.

Source: NT EPA guidance (see new publication here)

Blue Mud Bay negotiations

The High Court's decision in what is referred to as the Blue Mud Bay case has resulted in negotiations between the NT Government and the Northern Land Council for over a decade. Local access arrangements authorising recreational and commercial fishing exist in some areas. Additionally, recent years have seen an impetus to move closer to a whole-of-Territory negotiated outcome, to provide certainty around access arrangements.

Blue Mud Bay negotiations involve the NT Government, the Northern Land Council (NLC), traditional owners of the coastline (rand rivers and estuaries), recreational fishers, and the NT seafood industry.

Commercial fishing in the NT's intertidal waters overlying Aboriginal land – the area between the low tide and high tide mark – requires the permission of the NLC (acting on behalf of Traditional Owners) for access.

The implications of the Blue Mud Bay decision are important along a narrow inter-tidal strip of the coastline, predominantly for parts of the mud crab fishery and parts of the Barramundi fishery. Most of the NT's seafood comes from outside this zone and is not impacted.

A seafood processing facility in Darwin will be reliant on access to and production of seafood from NT waters.

Detailed consideration of the Blue Mud Bay decision is beyond the scope of this report, other than to note that the NT seafood industry continues to view securing long-term access to these fishing grounds as a priority. In the unlikely event that negotiations do not conclude or breakdown, increased risks to access to these specific inshore areas may occur.

Potential opportunities for alignment with NT Traditional Owners

Notwithstanding that certain risks can be identified in relation to potential policy and legislative actions arising from the negotiation of a Blue Mud Bay settlement, a number of opportunities might also arise.

There are numerous remote Aboriginal communities who are actively exploring entering or expanding their involvement with commercial fishing and seafood. The large community of Maningrida, for example, has been fishing and selling locally using the expanded provisions of an Aboriginal Coastal Licence. Goulbourn Island and Groote Eylandt communities are also actively exploring the potential development tropical rock oysters, whilst there is a long history of Aboriginal community involvement with Trepang including, historically, hundreds of years of trade with Asia.

The development of these type of species by Aboriginal communities could one day create new potential users of a Darwin seafood processing facility, particularly as the expansion of harvesting/growing oysters and Trepang is likely to be environmentally manageable across much of the NT's intertidal waters.

Additionally, Aboriginal economic development through seafood will create additional commercial opportunities for the NT – particularly with increasing demand from Governments and communities across Australia for understanding food provenance.

Regulatory

This table illustrates recent agriculture projects with some similarities to seafood processing and the application to the Territory's environmental approval processes to those proposed. It also notes that a range of other regulatory approvals will likely be required, in particular a waste discharge licence.

	Integrated Live Export Facility	Project Sea Dragon Stage 1 Legune Grow-out Facility	Lambell's Lagoon Crocodile Farm
Development Summary	Construction and operation of a beef cattle pre-quarantine export yard facility at Livingstone, approximately 35km south east of Darwin.	Stage 1 of a prawn aquaculture farm at Legune Station in the Victoria River District, Northern Territory, consisting of 1,080 hectares of land-based ponds, 324 hectares of internal recycling ponds, and produce nominally 14,000 tonnes of prawns per annum.	Construct and operate a new crocodile farm for commercial production of saltwater crocodiles for skin and meat products. The farm is located about 17km east of Humpty Doo and 45km southeast of Darwin.
Level of assessment decided by NTEPA	Environmental Impact Statement (Tier 3 in new system)	Environmental Impact Statement (Tier 3 in new system)	No assessment required
Key risks	• Air quality and odour • Irrigation • Amenity • Contamination • Biosecurity	• Threatened species • Discharge of waste into waters • Management of solid and liquid waste • Impacts on local wildlife and environment	• Potential environmental impacts and risks associated with the project were not regarded as significant • NTEPA guidance for land use separation for livestock / holding pens to sensitive land uses is 1km radius
Conditions imposed to mitigate risks	• Odour Management Plan and Odour Impact Assessment • Water and licences, monitoring and management plans • Licensing under the Waste Management and Pollution Control Act	• Extensive environmental and species monitoring • Decommissioning and Rehabilitation Plan • Environmental Management Plan • Licensing under the Waste Management and Pollution Control Act	• Operational management plans • Potential licensing under the Waste Management and Pollution Control Act

Source: NTEPA Environmental impact assessments register (link). KPMG analysis

Financing

Project development normally requires a comprehensive package of due diligence reports prepared by independent consultants. A summary of the expected due diligence is set out below:

Due Diligence Area	Details
Independent Technical Consultants and Engineers	Validation of schedules, operational plans, capital and operating costs, implementation and other items typical for a project of this nature.
Site requirements	Assessment of site suitability, possibly extending to geophysical surveys and studies.
Independent Market Consultants	Supply and demand analysis, marketability, global cost curve and price forecasts.
Legal	Typical scope covering approvals, Major Project Agreements, corporate structures.
Insurance	Advise of required insurance arrangements and ensure implementation of required insurance.
Tax	Confirming tax and accounting assumptions are in accordance with Australian tax legislation. Advice on the tax effects of structuring and ownership models.
Financial Model	Confirm integrity of calculations and confirm with finance and project documents.

Attracting to investment to projects in Northern Australia is often easier said than done. Value-add processing facilities are rare in the region, and the market appetite to consider projects of this nature is untested. Project financing will require the consideration of much than just ordinary commercial lenders (e.g. Big 4 Banks, investment banks and international banks with Australian operations) and would require testing specific Northern Territory applicable Government-backed funds (e.g. North Australia Infrastructure Fund and the NT Local Jobs Fund), investor-backed or 'offtake' related financing (e.g. through a large commercial seafood customer) and possibly Indigenous specific funds (such as Indigenous Business Australia and the Indigenous Land and Sea Corporation.)

Source: KPMG analysis.

Operational

Any seafood processing facility in Darwin will require consideration of the existing operations of the NT fishing industry. Existing costs and potential inefficiencies need to be considered as part of the broader constraints and risks being considered.

There is limited 'hard' data available with respect to some of the existing costs and operating models in the industry. In general terms, each producer has their own business model for how fish get from the boat to customers. Within that context, our stakeholder consultations have provided some anecdotal evidence for the following elements of the NT seafood producers operating model.

HIGH LEVEL INDICATIVE ASSESSMENT BASED ON ANECDOTAL REPORTS

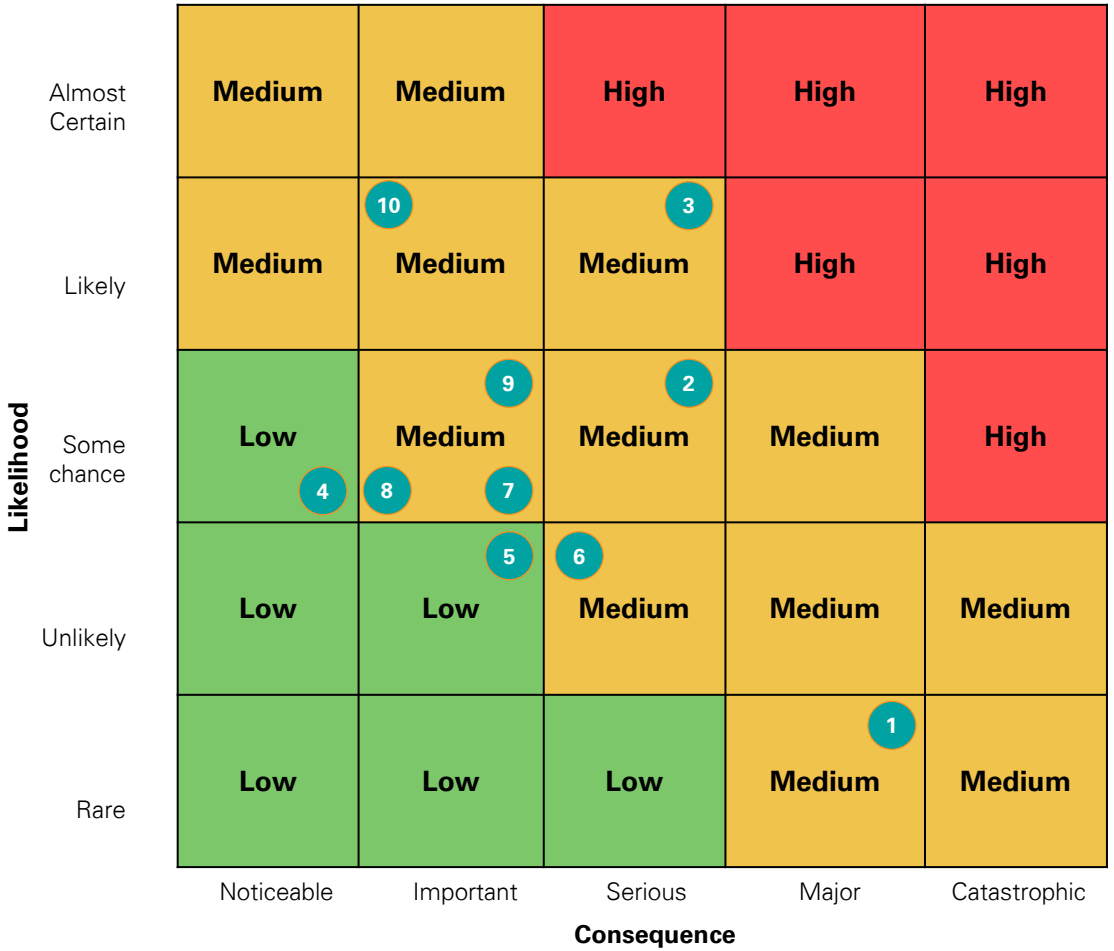
	Cost / inefficiency	Comment
Interstate refrigerated trucking transport	$0.50-$1 per kg	These costs are a general range noted in consultations for moving product to Sydney and Melbourne. Costs for moving to Brisbane are likely cheaper.
Darwin refrigerated trucking transport	$0.20-$0.30 per kg	These are the costs for loading fish off boats into refrigerated trucks which then move the product to handling, packing and storage (e.g. export storage) locations in Darwin. In some circumstances, these costs are incurred for moving product safely a few hundred metres from the Duck Pond to the Fisherman's Wharf area.
Sydney and Melbourne Fish Markets	10% of product price	This is the cost of the services the major fish markets provide in auctioneering / selling (and ancillary services around storage) NT products.
Unloading labour conditions	<5% of product price	Unloading from boats on the Duck pond area is completely uncovered, exposing workers to hot, humid and adverse weather environments. A better working environment for unloading would likely result in more efficient working conditions.
Product deterioration and spoilage	<5% of product price	Unloading from boats on the Duck pond area is completely uncovered, potentially exposes products to hot, humid and adverse weather environments. This can result in the reduced quality and sales prices can be lower as a consequence. There are also costs incurred (e.g. power and labour) in the need to constantly keep ice flows going onto products.

Source: KPMG analysis of stakeholder reports

Mitigating risks from the seafood processing facility development

There are many complex risks for any project development in the NT. There are also a range of local, national and international risks to all industries from the effect of the COVID-19 pandemic on supply chains and markets. The risks identified relate specifically to the Darwin processing facility concept and have been assessed based on the likelihood and consequence of them occurring in the next three years.

Matrix Assessment of Identified Risks



#	Risk Description	Proposed Mitigations
R-001	Loss of Government and Industry support	Government and industry planning around the development will be important. Taking a 'horizons' approach to the strategy – starting focused, growing out the concept over time – will be important for expectation management.
R-002	Effect of threats to social licence to operate	The processing facility should be an opportunity for the industry (and Government) to focus on driving best practices and high standards in the NT seafood industry.
R-003	Facility and site specifications	Site selection is crucial to this development. Appropriate investigations of the site and limiting development and construction costs will be vital.
R-004	Lack of enabling infrastructure	Consideration should be given to better understanding and supporting the economic profile and needs of the NT seafood industry. Where possible, infrastructure that supports efficiencies could be considered.
R-005	Product requirements	The seafood products, and the processes for value-adding to them, are fairly well-understood.
R-006	Environmental approvals (delays, conditions and risks)	All developments of this nature require professional investigations and assessments to ensure compliance with environmental and associated regulation.
R-007	Blue Mud Bay	Government and industry should continue to prioritise settlement and negotiations.
R-008	Regulatory challenges	Project development will require identification and management of industrial processing issues such as waste, water, odour and pollution.
R-009	Financing challenges	There is the potential to consider a wide range of financing options, all of which will demand a viable business case.
R-010	Operational inefficiencies in the industry	There are known operational inefficiencies arising from the industries current logistics and supply chains. The processing facility should, where possible, aim to reduce these inefficiencies.

Source: KPMG analysis

Stakeholder Engagement: What we heard

What we have heard from stakeholders

Opportunities

- Leverage branding around **clean, safe and healthy** seafood from Northern Australia
- **Technology** could support end-to-end quality management
- **Multiple processing opportunities** from niche to high volume
- **Indigenous participation** and economic **development** of indigenous **businesses**
- New opportunities for local businesses to **increase revenue**

"There is opportunity for indigenous engagement with traditional species"

"A processing facility could shift the mentality of fishermen and we could move towards being price makers"

Hesitations

- **Quality begins deteriorating** as soon as knife enters fish
- **Branding for NT products doesn't exist**
- Siloed behaviour, a **culture of 'this is how we have always done it'**
- Limited understanding of current **production values and volumes**
- Access to **skilled labour**

"Expertise in fishing doesn't equate to having the skills for processing and marketing"

"We would already have done it ourselves if it was worth it"

Blue sky

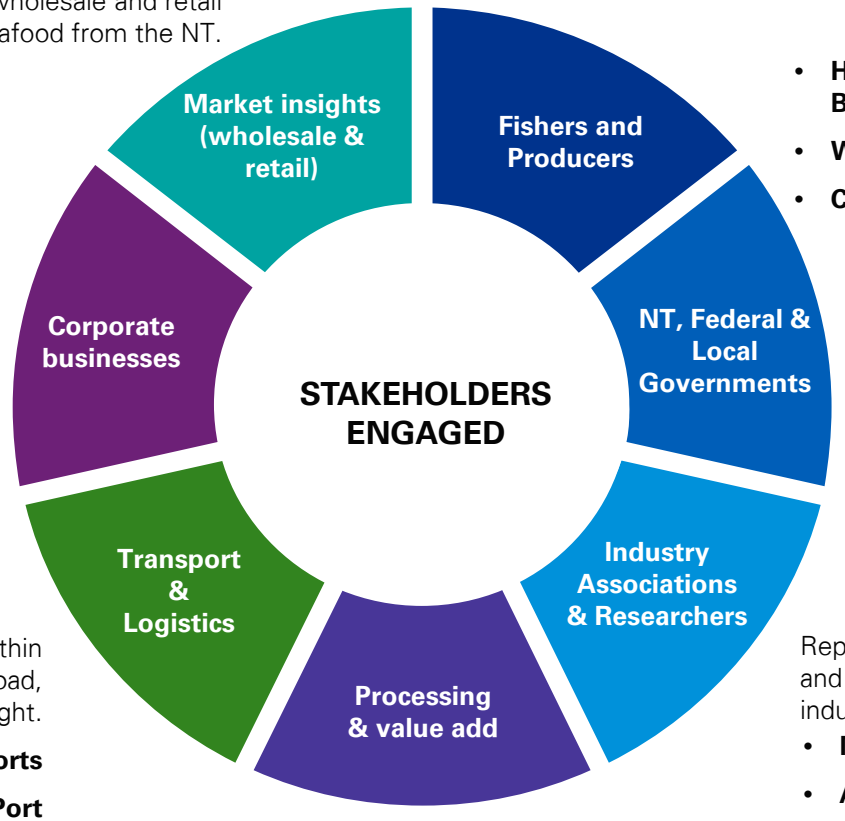
- The facility could have **accommodation** and areas for equipment **repairs** and **maintenance**
- **Processing seafood from** the **southern market** or from **all of Northern Australia** to leverage proximity to Asia
- **Multipurpose hub** encompassing tourism, food manufacture and seafood
- **Training facility** to upskill workforce and create jobs
- **Low cost loans/grants** could be supported by Government

"There are opportunities in producing high quality proteins from waste material"

"Demand exists for niche high value products such as leather goods from Barramundi skin"

Source: Information gathered during Stakeholder consultations between 27 July and 3 August 2020. Refer to Appendix for detailed stakeholder list,

A number of stakeholders were engaged throughout the study



Stakeholders who understand specific or niche markets that could support the wholesale and retail sale of seafood from the NT.

- **Ziko Ilic**
- **Atlantis Seafood**
- **Austop Fisheries**

Stakeholders who source wild-caught or farmed seafood and organise supply chain transactions with processors, exporters, forwarders or sell directly. They seek to ensure that products successfully reach their end destination in given timeframes whilst fulfilling order quantities as required.

- **Humpty Doo Barramundi**
- **Wild Barra**
- **C-Aid**
- **Australia Bay Seafoods**
- **Tasmanian Seafoods**
- **Industry-wide zoom meeting**

Vertically integrated businesses and stakeholders within the seafood supply chain.

- **Seafarms (Project Seadragon)**
- **Paspaley Group**

Government stakeholder insight across numerous parts of the current state. Stakeholders also have a strong understanding of regulatory requirements

- **Department of Agriculture, Water and Environment**
- **Department of Planning, Infrastructure and Logistics**
- **City of Darwin**
- **Department of Industry, Tourism and Trade**
- **NT Fisheries**

Stakeholders involved within the supply chain via rail, road, sea and air freight.

- **NT Airports**
- **Darwin Port**
- **PakFresh**
- **Scott's Refrigerated Logistics**

Potential stakeholders or examples of onsite processing or options for value add prior to transport.

- **C-Aid**
- **Mackay Reef Fish**

Represent supply chain customers to support and bring together relevant groups to maximise industry opportunities.

- **NTSC and Members**
- **Australian Prawn Farmers Association**
- **Australian Barramundi Farmers Association**
- **Fisheries Research and Development Corporation**
- **AFANT**

Stakeholders were engaged in the Market Assessment Phase.

A snapshot of some of the sentiments from the stakeholder consults are outlined below.

Source: Stakeholder consultations held between 7/8/20 – 21/8/20.

NTSC members sentiment

The team undertook a Q&A session with members from the NTSC to understand their views and support for a processing facility for the NT.

"Potentially a co-op that is owned and run by one organisation that is commercially focussed"

"As an industry representative we can promote and encourage our products for processing in line with market demand"

"The facility must be commercially focussed and individual involvement should reflect financial commitment into project"

"If the facility is privately owned it needs to operate and support the small family owned fishing businesses in the NT"

"As an industry representative I can work as the conduit between Fisher/ processor/ customer to maximise the benefit to NT Seafood"

"Need to be mindful of success and failure of co-ops around Australia – plenty have failed"

"The processing facility cannot be run just as a socialist operation. It needs to lift the industry up"

"The project needs a proof of concept and business model established well before any significant investment"

Source: NTSC Q&A Information Session on the 'Darwin Seafood Processing Scoping Study' 7/09/20. Attended by 12 industry participants from the following fisheries / areas: Aquaculture – Barramundi, Development Fishery, NT Coastal Line Fishery, NT Demersal Fishery, NT Mud Crab Fishery, NT Offshore Net and Line Fishery, NT Spanish Mackerel Fishery, NT Timor Reef Fishery, NT Trepang Fishery, Vertically integrated business and Wholesale/retail.

Strategic Market Opportunities

Short-list of strategic market opportunities

Priority species were selected for detailed investigation based the **highest production value** for the NT and **potential growth species** identified through research and stakeholder insights. A number of species were not investigated in detail (e.g. other finfish and snapper varieties, tuna, squid) but it is anticipated that there may also be opportunity for further processing for these species. Each product was assessed against the below criteria based on research findings and stakeholder consultations to rate the overall processing opportunity. Ratings were based on a **short to mid-term outlook (3-7 years).**

	Core Criteria					
Species	Supply growth	Domestic demand	International demand[2]	Competition	Potential for value add processing in the NT	Overall Opportunity
Barramundi						High
Mud Crab						Mid
Mackerel[1]						Good
Goldband Snapper						Good
Prawns						High
Trepang						High
Black Jewfish						High
Pearl Meat						High
Shark						Mid
Tropical Oyster						Mid

A '**High**' assessment indicates a very attractive product for processing with a market(s) that has significant expected potential financial returns for processed product from the Northern Territory

A '**Good**' assessment indicates an attractive product for processing with a market(s) that has high expected potential financial returns for processed product from the Northern Territory

A '**Mid**' assessment indicates assessment indicates a product with some processing potential and/or a market that has some expected potential financial returns for processed product from the Northern Territory

A '**Low**' assessment indicates the product or market is not expected to have ample opportunity for processed product from the Northern Territory

Detailed analysis for each priority product can be found on the following pages

Note: 1. Spanish Mackerel and Grey Mackerel are the two major mackerel species produced in the NT. Detailed analysis for each type is not possible due to limited information on each specific type. 2. Assessment is based on international demand and does not reflect any regulatory requirements that may be needed in order to access export markets as these vary significantly by product and market, even within species.

In Focus: Barramundi

Barramundi is one of the most valuable species produced in the Territory, driven by the large volume of aquaculture production. Barramundi is in high demand in Australia, with the majority of consumption filled through imports from Asia.

Overview

Barramundi is an iconic species, significant to the Northern Territory for its economic and social contribution through commercial and recreational fishing, and as an important resource for Aboriginal Territorians for cultural and subsistence purposes. In addition to Northern Australia, Barramundi can be found in the Persian Gulf, South East Asia, China, southern Japan and Papua New Guinea where it is known as Asian sea bass, giant perch or giant sea perch.

The NT wild catch fishery is restricted to 14 licences with Wild Barra Fisheries Pty Ltd the major license holder [1] with a Gross Production Value of $3.6million.

There has been significant growth in farming of Barramundi in the Northern Territory (Humpty Doo Barramundi)[1] , with a gross value of production from farmed product in 2018 of $22.8m. The combined aquaculture and wild harvest makes Barramundi one of the most valuable species produced in the Northern Territory.

Markets and Competition

Demand for Barramundi in Australia and overseas is high. In Australia, a significant proportion of this demand is met by imports, with 60-70%[2,3] per cent of Barramundi eaten in Australia imported from Asia, most of which comes in the form of fillets.

Strong forecasted growth, particularly for farmed Barramundi support good supply growth prospects.

Imported Barramundi is often cheaper than the Australian product, however different products service different market segments. Supermarkets are a major market segment for imported Barramundi, whilst restaurants more often seek fresh Australian product[3].

There is currently one large Barramundi farming operation (Humpty Doo) supplying approximately 3,000 tonnes pa of fresh Barramundi to (predominantly) interstate markets (Sydney)[4].

Processing opportunities

Barramundi is mostly sold as whole chilled fish, live fish and fillets. Market-ready fish size can range from 300g to more than 2kg per fish depending on market demand and end use (and whether wild-caught or not). The main markets are for plate-sized fish weighing 400–800g and larger fish weighing 2–3kg, which can be filleted[3].

There is currently little post-harvest processing or value-adding of fresh Barramundi. Any processing is dictated by retailers and occurs closer to source of consumption. Examples of processed products available from major Australian supermarkets are outlined below[5].

John West Barramundi With Lemon Myrtle & Murray River Salt Seasoning

Birds Eye Frozen Fresh Caught Barramundi Crispy Batter Fillets

Ultimates Indulge Responsibly Fished Tuna & Barramundi Cat Food Canned

Criteria	Rating
Supply growth	**Aquaculture volumes increasing. Consistency of supply may be an issue.**
Domestic demand	**Domestic demand exceeds supply. Demand currently met largely by imports**
International demand	**High demand for Australian product**
Competition	**High competition from cheap imports which account for most of domestic consumption**
Potential for value add processing in the NT	**Generally process lower value product.**

Sources: 1. ABARES, Fisheries and aquaculture profiles. 2. Submission 34 - Australian Barramundi Farmers Association - Marine Fisheries and Aquaculture - Public inquiry (2016). 3. Barramundi Aquaculture, AgriFutures Australia (2017). 4. Oceanomics Infrastructure Report, 2019. 5. Coles Online, accessed 20/07/2020. KPMG analysis.

High Good Mid Low

In Focus: Mud Crab

Mud Crab is a fishery that reaps a high unit price. Given the nature and high demand of live mud crab the opportunities are largely for mud crab as a whole, premium and niche product for both the domestic and export markets.

Overview

The NT Mud Crab Fishery is predominantly based on the Giant Mud Crab with a lesser extent of catch being the Orange Mud Crab. A prized species in the NT, it is popular with commercial and recreational fishers and is an important resource for Indigenous Territorians.

To manage the fisheries sustainably a limit on the number of available commercial licences and pot restrictions has been imposed. The cost of commercial fishing licence fees are approximately 2.3% of total GVP[1]. The fishery operates under a Harvest Strategy that includes performance indicators that monitor stock levels. Management actions are taken to correspond to the performance indicator and range from a 3 week closure up to high level action which is a 3 month closure.[1]

The implications of the Blue Mud Bay decision are important along a narrow inter-tidal strip of the coastline, affecting parts of the Mud Crab fishery.

Markets and Competition

The Gross Value of Production (GVP) of Mud Crab is approximately $4-5million per annum, however, GVP has reached up to $10 million in good seasons[2].

The market is supply driven and the availability of mud crab dictate both the ability to export but also the economic benefits. In years of short supply, high domestic prices support the industry and when supply increases the export market is an essential component to underpin industry viability.

This volatility in supply is a barrier in the industry building up stronger export prospects to capitalise on. Supporting the industry is that there is a restriction on 'live crab' imports to Australia so domestic competition is minimal.

In 2018 the export value of NT Mud Crab was approximately $360,000[2].

Processing opportunities

The opportunity for value add for the NT Mud Crab product is limited due to the nature of the product. Achieving premium products and competitive advantage for the industry is as a 'live product'.

Additional processing is minimal and premium value is gathered via live product. Additional processing options (e.g. fresh or frozen crab meat packs and tinned meat) used for other crab species may be viable, mud crab does not appear to be a high priority product for processing.

Cooked whole mud crab. AFR.

Note: Whilst processing value is limited, Mud Crab is an iconic NT species that would be key to any ancillary processing activities (e.g. fish market, tourism)

Criteria	Rating
Supply growth	**Minimal supply growth and seasonality**
Domestic demand	**Strong domestic demand and prices support industry returns today**
International demand	**Low volume of export in recent years, opportunities for market specialisation**
Competition	**Other competition in live products. Not an essential good and seen as a 'luxury'**
Potential for value add processing in the NT	**Live crab greatest value. Some potential for value add to lower quality products (e.g. packaged crab meat)**

Sources: 1. Department of Primary Industries & Resources, here. 2. Australian fisheries and aquaculture production 2018 (ABARES) (Published April 2020). KPMG analysis.

High Good Mid Low

In Focus: Mackerel

Mackerel is a popular commercial species produced across Australia. The Northern Territory produces two species of Mackerel – Spanish Mackerel and Grey Mackerel – which have experienced modest growth in price and volume over the ten years from 2008.

Overview

There are a number of mackerel species present in the NT, with Grey Mackerel and Spanish Mackerel the two main commercial species. The production value of mackerel reached $6.2m and 1,002 tonnes in 2018[1]. This represents 13% of the NT's seafood GVP.

Grey Mackerel is a key species harvested from the Offshore Net and Line Fishery, with the total allowable commercial catch (TACC) set at 535 tonnes. The most recent stock assessments indicate that recent catch levels are sustainable and there is scope for a controlled increase in harvest[2].

Spanish Mackerel is the primary species taken in the Spanish Mackerel fishery but there are a small number of other mackerels taken as bycatch. The Spanish Mackerel fishery has a TACC of 342 tonnes[3]. All Spanish Mackerel stocks have sustainable stock status[4].

Markets and Competition

Mackerel are among Australia's most popular commercial seafood species and are produced Australia wide. Specific species produced varies between southern, temperate and subtropical waters.

There has been strong demand for frozen Spanish Mackerel fillets on the east and west coasts, and fresh trunks reaching good prices on the southern and east coasts due to increased consumer demand.[5]

Export of mackerel is limited, with 50 tonnes exported in 2018 with the majority of product coming from NSW and Victoria. In 2018, 2,152 tonnes of mackerel was imported to Australia. Of this, 476 tonnes was frozen, with over half coming from New Zealand.[6]

Processing opportunities

Fish is usually filleted, packed in 10kg boxes and frozen on board[7]. Smoked mackerel and marinated fillets are also available at major Australian supermarkets (see below for examples)[8]. Mackerel frames are also highly suited for making fish stock[9].

Mr Fish Hot Smoked Mackerel

Sole Mare Mackerel Fillets Tuscan Herb & Olive In Olive Oil Skinless and Boneless

Criteria	Rating
Supply growth	**Historical growth in supply volumes, sustainable stock status**
Domestic demand	**Strong demand for filleted product outside of NT**
International demand	**Limited export from Australia**
Competition	**General competition from other species and high domestic consumption of imports**
Potential for value add processing in the NT	**Fillets are popular, also opportunity for smoked and canned product**

Sources: 1. Australian fisheries and aquaculture production 2018, Australian Bureau of Agricultural and Resource Economics and Sciences.(ABARES) (Published April 2020). 2. Management arrangements for the Northern Territory offshore net and line fishery (2018). 3. ABARES, Fisheries and aquaculture profiles. 4. Spanish Mackerel, Fish.gov.au (link) 5. Northern Territory Seafood Council Year In Review 2019. 6. Seafood Trade Data, Seafood Import and Export by Volume by Species dashboard, FRDC. 7. Oceanomics Infrastructure Report, 2019. 8. Coles Online, accessed 20/07/2020. 9. Fish Files, Spanish Mackerel (FRDC). KPMG analysis.

High Good Mid Low

In Focus: Goldband Snapper

Goldband Snapper production has been increasing in value in the NT despite a decline in volumes, and represents 11% of the NT's seafood GVP. Goldband Snapper faces competition from substitution with other fish species and there are minimal examples of value-add processing.

Overview

Goldband Snapper is widely distributed through Northern Australia. Goldband Snapper is wild caught in the Demersal Fishery and Timor Reef Fishery with both stocks classified as sustainable[1]. Around 90 per cent of the catch is from the Timor Sea and western Arafura Sea.

Despite commercial catch volumes decreasing by 6% from 2008-2018, the value of Goldband Snapper increased 3% in the same period and accounts for 11% of the NT's seafood GVP[2].

Markets and Competition

Domestically, Goldband Snapper is often confused with the Snapper (*Chrysophrys auratus*) and faces competition from other easily substituted species such as other snapper varieties, Blue-Eye Trevalla, Sea Perch and Coral Trout.

The majority of NT Goldband Snapper is transported as whole fish to Sydney, Melbourne and Brisbane markets. A small portion is supplied fresh to local NT markets (predominantly Darwin restaurants)[3].

There is not a well established import or export market for the species, with some imports from Asia and the South Pacific. There is general competition from cheaper imports which is characteristic of the broader Australia market.

Processing opportunities

Currently, Goldband Snapper landed within the Timor Reef and Demersal fisheries are sold as whole fish (including gills and stomach), with very small amounts sold as fillets.

Goldband Snapper is sold whole (gilled and gutted), in cutlet/steak and fillet forms. Goldband Snapper sells at a medium/high price point (for example $20/kg for whole fish, $55/kg for fillets)[4].

Beyond basic filleting, additional value add processing is minimal.

Goldband Snapper Fillets. Sunshine Coast Organic Meats

Criteria	Rating
Supply growth	**Historical growth in supply volumes**
Domestic demand	**Demand exists for snapper species generally**
International demand	**Limited export from Australia**
Competition	**General competition from other species and high domestic consumption of imports**
Potential for value add processing in the NT	**Some product sold as filets**

Sources: 1. Gold Band Snapper (2018), Fisheries Research and Development Corporation. 2. Australian fisheries and aquaculture production 2018 (ABARES) (Published April 2020). 3. Oceanomics Infrastructure Report, 2019. 4. Sydney Fish Market. KPMG analysis.

High Good Mid Low

In Focus: Prawns

The Northern Prawn Fishery, located off Australia's northern coast with a major landing port in Darwin, is one of the most valuable Commonwealth fisheries in Australia. Prawns from the Northern Prawn Fishery are often processed at sea, but there remains ample opportunity for value-add processing.

Overview

The Northern Prawn Fishery (NPF), a Commonwealth Fishery with a major landing port in Darwin, along with Cairns (QLD), and Karumba (QLD). The NPF is Australia's largest and most valuable prawn fishery. In Financial Year 2018 (FY18), the estimated catch was 7,810 tonnes and GVP was $98m with the fishery close to its maximum economic yield targets[1].

Key species are tiger prawns, banana prawns and endeavour prawns. Most of the catch is fresh frozen on-board and periodically transferred onto motherships at sea and in Darwin, Cairns and Karumba. From there prawns are transported to local or interstate wholesalers and sold locally or exported overseas.

Prawn aquaculture is set to increase in the Territory through Project Sea Dragon[2].

Markets and Competition

As the NPF is a Commonwealth Fishery, it is not clear what proportion of products from the NPF are landed Darwin or can be attributed as a product of the Northern Territory. The majority of the tiger prawn catch from the NPF fishery is exported, predominantly to Japan however, exports to China and countries within the European Union are increasing[3]. Approximately 80 - 90% of white banana prawns from the NPF are sold on the domestic market[3].

In general, prawns face competition with cheap imports. In 2018, 32,000 tonnes of prawns were imported (majority pre-prepared product) into Australia in compared to 4,000 tonnes exported (majority frozen product)[4]. Wild caught prawns from the NPF also face competition from farmed prawns, which are largely produced in Queensland.

Processing opportunities

Prawn trawlers operating in the NPF are often fully refrigerated for at-sea processing, with prawns graded, packed and frozen on board within a short period of time. There is some land based processing, which produce mainly whole and headless prawns in frozen blocks for export markets.

Premium value add processing opportunities include product differentiation based on provenance (Northern Australia) and the sustainability of the fishery (e.g. NPF is MSC certified)[5].

Prawn waste generated through processing contains several bioactive compounds such as amino acids. These bioactive compounds have a wide range of potential applications across medicine, cosmetics, biotechnology and textiles[6].

Criteria	Rating
Supply growth	**Significant supply growth from aquaculture**
Domestic demand	**Strong domestic demand**
International demand	**Significant export volumes and established export markets**
Competition	**Competition from cheap imports**
Potential for value add processing in the NT	**Range of value established processed products in the market**

Norfolk Bay Wood Smoked Prawns.

De Costi Lemon & Garlic Butter Prawns

Sources: 1. Australian Fisheries Management Authority Annual Report 2018-19 – Northern Prawn Fishery. 2. Seafarms, About Project Sea Dragon. 3. Harvest Strategy for the Northern Prawn Fishery, Australian Fisheries Management Authority (2019). 4. Seafood Trade Data, Prawn Import and Export dashboard, FRDC. 5. Value Adding: The King Prawn, Nuffield Australia Project No: 1117.6. Kandra, Prameela & Challa, et.al. (2011). Efficient use of shrimp waste: Present and future trends. Applied microbiology and biotechnology. 93. 17-29. KPMG analysis.

High Good Mid Low

In Focus: Trepang

Trepang also known as sea cucumber is a delicacy hat has been harvested by hand from the Northern Territory for hundreds of years. This tradition and trade has supported people of Northern Australia and continues to be a premium export for the Territory.

Overview

Trepang or Sea Cucumber is a delicacy and has been traded by Territorians for hundreds of years. The common name for the species found in NT waters is Sandfish, this species is found in many countries from east Africa to the eastern pacific, preferring tropical waters. Under increased pressure of over fishing, Trepang numbers globally have declined.

In 2016, 87.2 tonnes of wild catch Trepang were caught in Australia with a value of $3.9m[1]. Currently there are six fishing licences for Trepang in the NT all held by one company, Tasmanian Seafood. Growing of farmed Trepang occurred in Harvey Bay in Queensland in 2003, and a number of subsequent research projects have occurred via the Australian Seafood Cooperative Research Centre[2]. In Australia, Trepang is harvested by hand, and predominately processed and dried in Victoria for consumption in export markets.

Markets and Competition

Regarded as a delicacy in the Asian region, prices for Trepang can fetch US$45 per kilogram[5].

Low volumes and seasonality of Trepang result in it being more economically feasible to transport south for processing[5].

The product is mainly exported to Hong Kong and Singapore as a dried or frozen product[3]. A key area for processing includes Victoria which supports the direct export to market[5].

With very low volumes of product being exported, the total 2018 export totals for Australia were $76,626[3]. Exports for previous years in 2016 and 2017 totalled $6,600[3] with very little margins the opportunity for the export market seem minimal.

Processing opportunities

The sea cucumber requires minimal processing equipment. The process from catch to export requires drying which can occur in basic methods (dry heat) and sliced and packaged for export. The only evident commercial processing occurs at a facility in Melbourne, Victoria.

Export as prepared or preserved sea cucumber to Hong Kong are the only recorded sales according to FRDC data.

Trepang has featured in value add products sold through Deep Blue Health in New Zealand, as a vitamin product that is targeted towards general health, immune health and joint mobility.

Freeze Dried Sea Cucumber, Aliexpress

Sea Cucumber Extract, Deep Blue Health

Criteria	Rating
Supply growth	**Restricted supply with unknown growth projections**
Domestic demand	**Domestic demand by Asian cultures is moderate. However is not the most valuable market**
International demand	**International demand is high and outlook supports growth prospects for Trepang**
Competition	**A niche product, faces competition from other sea cucumber species but overall has a solid outlook**
Potential for value add processing in the NT	**Currently processed in southern Australia. Opportunity to dry and process in the northern territory, however volumes do not support a stand alone facility**

Note: Given the lack of available and current information, stakeholder consultations guided the understanding for markets and market dynamics. **Sources:** 1. Department of Primary Industries & Resources, available here. 2. Mariculture in the Northern Territory, available here. 3. Fisheries RDC, *Seafood import and export – Sea cucumber, a*vailable here. KPMG analysis. 5. Sea cucumber market insights, available here.

High Good Mid Low

In Focus: Black Jewfish

Black Jewfish is caught with the swim bladder having significant value in Asian export markets.

Overview

The Black Jewfish is a widespread Indo-Pacific species found across Northern Australia. In the NT the species is recovering from previous overfishing and has a TACC of 145t in place in the western zone of the fishery (WA border to Coburg)[5].

The swim bladder is the premium product for this species with strong demand in Asia, the secondary product the fillet anecdotally still has good eating characteristics.[2]

The number of fishing licences is capped at 52 and holders must have quota to operate. In recent years the value of Black Jewfish swim bladders has increased significantly. In response to an increased risk for illegal activity and overfishing the Government implemented strict penalties for illegal harvest or sale.

An additional measure has been the introduction for all commercially caught swim bladders must have an authentication tag issued by NT Fisheries.

Markets and Competition

The Black Jewfish has become increasingly popular in recent years with the growing demand for the swim bladder from the fish with the key export market being China. Due to not being on the 'China export list' the product is sold to channels in Hong Kong and Singapore primarily, with visibility and knowledge of China market insights unknown.

During stakeholder consultations it was referenced that the beach price for the Black Jewfish 'flesh' sells for approximately $7.50 per kilogram[5], however this is seen as a 'secondary product' to the primary product which is the swim bladder.

The dried swim bladder can fetch between $500-$900 per kilogram and is a favourite in Asian markets as it is a delicacy and aphrodisiac.[3]

Processing opportunities

There is a requirement of all fishers both commercial and recreational to land the fish whole and no processing of the fish is permissible at sea to ensure that the valuable swim bladders remain with the fish.

Processing includes the separation of the primary product (swim bladder) and remainder of the fish. The bladder could be dried and packaged in Australia for export with the remainder of the fish processed for domestic sales markets.

Dried Swim Bladder, JD.com

Criteria	Rating
Supply growth	**Restricted by catch volume due to species protection**
Domestic demand	**Information for domestic demand is limited**
International demand	**Demand is high particularly for highly valued Swim bladder**
Competition	**Swim bladder makes this fish a premium good that is highly demanded**
Potential for value add processing in the NT	**Value add processing exists in the form of the swim bladder. Further processing into other products could support the industry**

Note: Given the lack of available and current information, stakeholder consultations guided the understanding for markets and market dynamics. **Sources:** 1. Fisheries RDC, available here. 2. Department of Fisheries Queensland, Management changes of the Black Jewfish, available here. 3. ABC News, *Black Jewfish Swimbladder black market.* Available here. 4. Grubert et al, *Stock Reduction Analysis*, Accessed August 2020, available here. 5. Stakeholder consult. KPMG analysis.

High Good Mid Low

In Focus: Pearl Oysters (Pearl Meat)

Pearl aquaculture is a high value industry for the Northern Territory. Whilst production focuses on Pearls, Pearl Meat is a high value by-product that is highly sought after in Asia.

Overview

Pearls (Pinctada maxima) are mainly produced in the Northern regions of Australia. Broome (WA) is generally considered the major Pearl production capital, but Pearls are also produced in the NT. Pearls from Pearl Oyster aquaculture contribute significantly to the value of aquaculture production in the Territory, but production data is not publicly available due to confidentiality reasons. In 2009, the NT Pearl industry GVP was $19m[1].

There are up to 150 vessels supporting pearling operations throughout Northern Australia in both open water and on aquaculture farms[2]. Most Pearl Oysters used in the production of Pearls in the NT are hatchery-reared, with farming occurring in Bynoe Harbour, Beagle Gulf, Cobourg Peninsula and Croker Island[3].

Pearl meat, a by-product of Pearl production, is also a highly regarded delicacy described as being similar to abalone or scallop[4]. There is scarce data on volumes of this by-product.

Markets and Competition

Pearl meat is a well established and highly sought after delicacy in Asia. Because only small quantities of Pearl meat tend to be harvested annually it is an expensive commodity, selling in Australia for at least $100 per kilogram fresh or for $400 per kilogram dried in Asia[5].

Maxima Pearling, 500g frozen Pearl Meat

Ausasia Seafood, Dried Pearl Meat

Processing opportunities

Once the oyster is no longer used for producing Pearls is it able to be processed for the meat and mother of Pearl shell[5]. Pearl meat is the adductor muscle of the Pearl Oyster. Pearl meat is sold both fresh (domestic and export markets) and dried (export markets).

There is limited visibility over production volumes of Pearls in Australia, and ensuring consistent supply is likely to be a key issue. Additionally, consideration must be given to regulatory requirements for Pearl production that may not classify growing sites for food production.

Criteria	Rating
Supply growth	**By-product of Pearl production. Limited data available.**
Domestic demand	**Niche, high-end product. Limited domestic demand.**
International demand	**Significant demand in Asian markets.**
Competition	**Scope for increased volumes to meet demand and limited number of players.**
Potential for value add processing in the NT	**Product must be processed to meet market demands. May have issues with consistent supply.**

Sources: Given the lack of available and current information, stakeholder consultations guided the understanding for markets and market dynamics. 1. Pearling Industry Status Report 2009, Fishery Report No.104. 2. Pearl Producers Association Submission: Standing Committee on Public Administration – Inquiry into the issue of Property Rights, 31 July 2019. 3. Aquaculture species, Northern Territory Government (link). 4 Ingredients and Tips – Pearl Meat, Australian Broadcasting Corporation (link). 5. Our Pearl Meat, Cygnet Bay Pearl Farm (link). KPMG analysis.

High Good Mid Low

In Focus: Shark and Grey Mackerel

The Shark fishery within the Territory has a long history dating back to the Malaysians fishing up to 7,000 tonnes of shark annually.

Overview

The Offshore Net and Line Fishery focusses on pelagic nets and long line fishing harvest a range of shark species. There are currently 18 offshore fishing licences in the NT.[2]

Blacktip Shark is a key shark species harvested by the Offshore Net and Line Fishery and it has a TACC of 435t. Other shark quota groups include Spot Tail Shark (TACC 121t), combined shark species (236t), combined other shark (TACC 126t).

Catches of shark in 2019 were well below the TACCs with scope to increase in the future in the order of 50-75% for some species.[6]

Markets and Competition

Shark is demanded in both the domestic and export markets. Domestically the product goes to food service while in the export market the product is demanded as both a meat and the highly sought after 'shark fin'.

Based on limited available data, there is indication in the peak year of 2003, the NT Shark Fishery was valued at $10.3m with Blacktip Shark valued at $2.8m, other shark $4m, Grey Mackerel was $3.4m[1]

Australia's shark fin market is incredibly volatile with the export of product fluctuating between nearly 200 tonnes per year down to zero tonnes annually.[5]

By value, Hong Kong was the most significant market and with volume Taiwan was the largest volume market. In 2015, 3,000 tonnes of Australian shark fins were exported to Hong Kong with a second export market in Singapore receiving 300kg[5].

Processing opportunities

There are a number of opportunities for shark post processing. As a high volume product it also has a niche market for shark fin both domestically and internationally:

- Meat – sold as flake into domestic market.
- Shark fin removed and dried. Packaged for exports and sent to key export markets.
- Reprocessing can occur in export markets.

Opportunity to process shark meat into 'battered and fish fingers' for the Australian market. Processing would provide opportunities for export of Shark Fin to key markets as by-product of flake.

Criteria	Rating
Supply growth	**Limited statistical evidence and continued decline since 2003**
Domestic demand	**Demand in food service supports the industry but can be substituted by species and region**
International demand	**Strong demand in Asia for both volume and value markets**
Competition	**Competition with southern fisheries for both food service and export**
Potential for value add processing in the NT	**Value add for southern processed fish market. Export opportunity for shark products**

Sources: 1. Australian Government Department of Environment and Heritage, Assessment of the NT Shark Fishery 2005, available here.
2. ABARES, Fishery Status report 2019. 3. NT Seafood Council Data. 4. ABC, *How involve in Australia in the global shark fin trade.* Available here. KPMG analysis.

High Good Mid Low

In Focus: Tropical Oyster

The Tropical Oyster has been harvested for decades from Northern Australia, with only a small volume of production the opportunities for tropical oyster processing is there, however, there is currently limited opportunity.

Overview

Tropical Rock Oysters are found across Northern Australia, they have featured as part of the diet of indigenous Australians for generations.

Trials undertaken by FRDC across WA and the Northern Territory are providing researches with the ability to monitor variables to support oyster growth, quality and ultimately food safety requirements[1].

Current projects valued at more than $4 million are looking at the opportunities for Tropical Rock Oyster across Northern Australia to analyse hatchery management requirements and how to optimise grow out of oysters.

Resultant studies have found a new aquaculture sector for Northern Australia would employ at least 500 people and result in a direct increase in output of $217m.

Markets and Competition

Competing against traditional oysters on the domestic market the traditional Tropical Rock Oyster is expected to be under strong future demand.

With only small trials currently occurring and expected small sale volumes over the next 3-5 years the Tropical Oyster is not seen as an opportunistic product.

Supporting the domestic demand is access to international markets for export including Hong Kong, Singapore and Indonesia.

Processing opportunities

Minimal processing opportunities occurs for the product and the options for value add processing will need to be evaluated once the oyster stocks increase.

Source: FRDC

Criteria	Rating
Supply growth	**Currently limited in supply the processing supply is minimal currently**
Domestic demand	**Limited data for quantitative information. Indication supports opportunity.**
International demand	**Limited data to support exports**
Competition	**Being a unique product the competition is from traditional oyster varieties**
Potential for value add processing in the NT	**Sales generally occur directly from the harvested product. Minimal opportunities for value add processing.**

Sources: Given the lack of available and current information, stakeholder consultations guided the understanding for markets and market dynamics. 1. Fisheries RDC, *Rock oysters show their tropical potential*, Available here. 2. Northern Australia CRC, *Tropical rock oyster research and development*, Available here. KPMG analysis,

High Good Mid Low

Potential Sites

Potential Sites

Good
Decent
Low

	Size	Site risks	Proximity to seafood fleet	Current uses	Logistics	Ancillary use potential	Timeline to site readiness	Existing infrastructure
	Does the site have the size to host a facility and possible future expansions?	*Does the site have known risks or potential risks?*	*Is the site located near the Duckpond?*	*Are there existing uses that would need to be managed or relocated?*	*Does the site have any logistics or supply chain advantages or potential future advantages?*	*Is the site a preferable location for ancillary businesses (e.g. markets, hospitality) to be integrated?*	*Is the site development ready or will there be delays due to existing uses or remediation requirements?*	*Does the site have facilities that could be repurposed or is it co-located with aligned facilities?*
Frances Bay – Existing producer location Fisherman's Wharf	🔴	🟡	🟢	🔴	🟡	🟢	🔴	🟡
Frances Bay – Gobi Desert	🟡	🔴	🟢	🟢	🟢	🟢	🔴	🟡
East Arm – Greenfield & potential marine park co-location	🟢	🟢	🟡	🟡	🟡	🟡	🟢	🔴
Airport – Greenfield near new export facility	🟢	🟢	🟡	🟡	🟢	🟡	🟢	🟡
Frances Bay – Paspaley Group Workboats site	🟢	🟡	🟢	🟡	🟢	🟢	🔴	🟢

Detailed analysis for each potential site can be found on the following pages.

Potential Site Shortlist

Note: *ratings for each site have been developed based on desktop analysis and stakeholder consultation. Site risks, for example, is a high-level indicative assessment. Any site being considered for development will require assessment by professional and technical experts to validate and certify its current and potential state in accordance with relevant standards and regulatory requirements.*

The site shortlist has been rated against some of the key strategic needs for the development of a processing facility in Darwin.

The Gobi Desert site scores highly across all key indicators other than site risks and timeline to readiness and, relatedly, the extent to which the site can host a facility and future expansions. Notwithstanding the strong alignment on many measures, the potential remediation issues are a cause for concern and may require – at least – extensive pre-development works that create cost and delay.

The greenfield sites at East Arm and at the Airport are also aligned to the development of a facility. They have the significant advantage of being more-or-less development ready. Lower scores in other areas mainly relate to being located away from the Duck Pond.

The existing producer location at Fisherman's Wharf may be suitable for small-scale private development but is constricted by its size and existing uses.

The Paspaley Group workboats site at Frances Bay scores highly across key criteria. The exact timeline for much of the existing activities to be relocated to the East Arm ship lift would put availability out to 2024. There would also need to be technical investigations of the extent to which the current facilities can be repurposed, but at the least retaining or repurposing the site's existing wharf could be a 'game-changer' for the logistics and supply profile of the facility.

The recommended sites to shortlist for further consideration based on the number of strengths identified are therefore:

1. **Paspaley Group workboats site at Frances Bay**
2. **The Gobi Desert site at Frances Bay**
3. **The Airport location next to the newly constructed Export Facility**

Frances Bay Locality

The Central Darwin Area Plan is the starting point for understanding the vision for the Frances Bay area. It foresees a:

"Transition to a mixed use precinct that maintains the historic role of the locality as the home of the fishing industry while provide connections to the city centre and the Darwin Waterfront."

The Central Darwin Area Plan notes that a redevelopment is foreseen which would be:

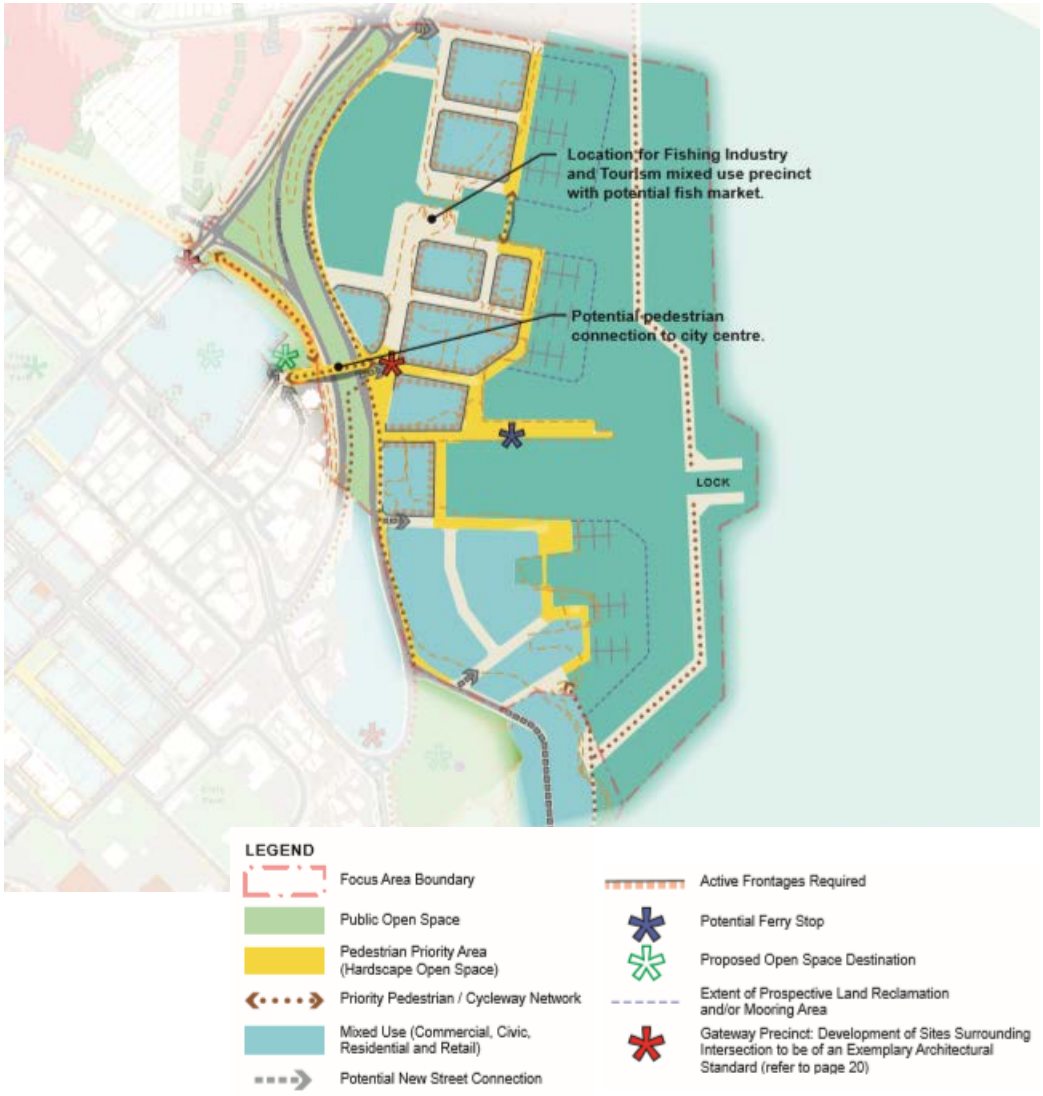
"a coordinated development comprising a combination of tourism, entertainment, retail, commercial, residential, and seafood industry uses."

Redevelopment of this area, with a stronger link to the city, is also foreseen in the implementation plan for the Darwin City Deal.

The land in the area is within a specific use zone under the NT Planning Scheme (SD9 – Fisherman's Wharf Locality) which means it is subject to the relevant requirements contained in the former Northern Territory Planning Scheme (2007). The purpose of that zone was to encourage the expansion of the existing waterfront and maritime industrial activities and the development of a mixed use area of residential, industrial and commercial uses that are related to the waterfront.

With consent, permitted use includes light industry and maritime and waterfront industry. There also height limitations with buildings north of the mooring basin lock limited to two storeys, with three story buildings permitted subject to amenity enjoyed by surrounding residents.

A site or facility at Frances Bay aligns well with the NT Government's vision for the area, however consent will still be required to establish a facility and there are height restrictions (and possibly others such as setback requirements). As the area is redeveloped and reconceptualised, current working sites may become available. For example, with the construction of the ship lift at East Arm, lot 6657 may have potential to be examined if it is no longer used for its current or related purposes. Similarly, existing barging facilities closer to the old tank farms may become vacant or disused if new facilities are developed elsewhere. Nonetheless, for the purposes of this study, two sites have been identified where the current ownership and existing use lends itself to being considered immediately for a seafood processing facility.



Sources: Central Darwin Area Plan (link) pg 57; Darwin City Deal Implementation Plan (link). KPMG analysis.

Frances Bay Site: Lot 6404 "Gobi Desert"

The so-called "Gobi Desert" site has been flagged for at least 20 years as a potential seafood processing facility site. The site is viewed favourably in terms of its strategic location close to the existing Duck Pond home of the NT seafood industry, and its potential as a city-adjacent location to allow the diversification of a facility into customer facing businesses. A conceptual design from 2003, for example, included fish markets, seafood restaurants and even potential alignment to broader residential redevelopment in the area (including backpacker accommodation and a swimming pool).

In noting the favourability of the location, the site itself nonetheless poses major potential risks. Geotechnical investigations commissioned by the NTSC in and reported to NTG in 2003 indicated that "*major geotechnical problems have occurred on Lot 6404 due to prior dumping of random fill in this area. Engineering remedial works are required before development to ensure that there are no post-construction settlement problems*". This was thought to require at least:

- Placement of engineered fill where major structures are to be found.
- Surcharging existing uncompacted fill and monitoring consolidation to ensure acceptable long-term settlement.
- Placement of an adequate layer of engineered fill on surcharged, uncontrolled fill once acceptable consolidation has been achieved.
- Use of reinforced concrete raft foundations to prevent any long-term settlement cracking.

The cost and scale of pre-development work for the site will depend on the full range of uses sought for the whole area. It is understood that the Department of Infrastructure, Planning and Logistics is well-advanced in its understanding of the site's surcharge needs. Potentially, this could include an additional 3 metres of load being added to key parts of the site, which may then require up to 3 years to settle, following which those areas would be suitable for warehousing or processing facilities. Bringing the whole site to that level of development remains a matter for further consideration.

Additionally, as mentioned earlier, the main benefits of this location would only be realised if an additional service wharf was constructed adjoining the Duck Pond, which the Oceanomics report indicated could cost between $1.5 to $3 million. This figure would need to be tested based upon new geotechnical studies and environmental assessments requirements and may be low. For example, dredging an expansion of the Duck Pond itself may cost many multiples of the wharf's estimated costs. Anecdotal evidence also indicated that there are also existing issues with a lack of sewerage connections in the Frances Bay area including at this site.

This land is NT Government and managed which also presents clear opportunities for Government facilitation of development and the potential to link into broader infrastructure and transportation developments being considered by Government.

Sources: Central Darwin Area Plan (link) pg 57; Darwin City Deal Implementation Plan (link). Oceanomics Infrastructure Report, 2019. KPMG analysis.

Frances Bay Site: Paspaley Group Workboats site

Stakeholder consultations conducted later in the project, with respect to potential production scenarios, also led to further consideration about the potential for this site. As part of the development of a new ship lift facility at East Arm, the Paspaley Group will be looking to relocate operations from this site, potentially by 2024.

The site has a number of natural alignments with a potential seafood processing facility. It is a very large site, in the area identified strategically through the NT planning regime as the strategic priority area for seafood industries. It is perfectly located with respect to the Duckpond, close enough that works to the existing mooring basin wharf could feed or funnel produce directly into a processing facility through handling or through technological solutions (e.g. conveyors).

Most importantly, the site has existing infrastructure that could potentially be repurposed. There are large warehousing type structures and office. There is also wharf facilities which could potentially be repurposed, creating seaward access (on the right tides). This would be an advantage that no other potential site has and is also something regarded as a best case scenario by many producers. It could also have significant commerciality benefits if capital costs were minimised.

The site is currently predominantly used to service workboats from the Paspaley Group. It is an industrial site, for example paint stripping and other processes take place, so the extent of any environmental or rehabilitation requirements are unknown and could range from cleaning and servicing to something more costly.

The current plans for operations on the site are also unknown, to the extent that further work would be needed to identify exactly what services and operations will be moved and if any will be retained at the location. The extent to which the NT Government is currently involved in any discussions on these topics (through the terms of the agreement with Paspaley Group concerning the ship lift relocation) is unknown.

There is also the potential for ancillary advantages in this site being owned by a seafood producer (Pearl Meat) that could have interest in using/investing in the facility, potentially assisting the development to be driven into reality.

It is also the simplest site on the shortlist to envisage developing ancillary businesses around a processing facility due to its size and specific Duckpond adjacent location (e.g. a market would be in proximity to current Darwin seafood retail outlets).

Sources: Stakeholder consultation with Paspaley Group; KPMG analysis.

Frances Bay Site: Lot 6656 Fisherman's Wharf

Fisherman's Wharf is in many ways the 'heart' of the NT Seafood Industry, with existing producers and markets being co-located in premises throughout lot 6656. Ownership of the lot is divided through a body corporate, and within each lot numerous sub-leases are also present. Using the entirety of the site would therefore have very significant impacts on the current industry and is likely not possible.

The ability to locate a facility here would therefore be dependent on the appetite of current owners and operators. In respect of one area of lot 6656, one owner (Unit 7 – marked on the below image) does have a commercial vision to expand small bespoke processing activities to commercial processing operations. Austop Fisheries currently operates within very small confines – approximately 200m^2 of operational space, of which approximately 100m^2 is refrigerated and 25m^2 used for semi-automated processing.

The semi-automated processing mostly encompasses filleting of Spanish Mackerel, but also includes the creation of sardine products in oils and preserves which can be purchased on site (see right).

Austop Fisheries has advocated for Government assistance in redeveloping the area. This includes resumption or acquisition of certain Crown land on the borders of the existing area, and the relocation of carparking. Anecdotal estimates for Austop indicate that a processing facility of up 630m2 may be able to be constructed pending approval and implementation of its concepts. Redeveloping the whole of Unit 7, Lot 6656 (the entire shed) could potentially create up to 2,000 m^2 of space for use and processing.

Source Austop Fisheries website: https://www.austopfisheries.com.au/products?lightbox=dataItem-jtuoe61l

The benefit of this location is that it is an existing local producer is already seeking to redevelop their business in a manner to execute the seafood processing concept. If the facility and development was planned in a way that mandated industry or other businesses participating, it may offer the quickest path commercially to deliver an outcome.

However, this location also has significant drawbacks. Fisherman's Wharf is a working area, it is industrial and dated. There is a lack of space and the Austop Fisheries proposal (even at its largest) would only create a small processing facility, with limited ability for multi-user access and little prospect of future expansion.

Sources: Central Darwin Area Plan (link) pg 57; Darwin City Deal Implementation Plan (link). Austop Fisheries. KPMG analysis.

Potential Sites

East Arm Locality

The NT Government has long-marked East Arm as strategic land. Under the NT Planning Scheme, the land (other than the railway corridor) is zoned Development (DV).

The zone purpose is:

> *"to facilitate the development of major strategic industries that are of importance to the future economic development of the Northern Territory, including gas, road, rail or port related industries."*

More specifically, the following zone outcomes are also sought:

1. *A range of strategic industry activities, including abattoir, fuel depot, major industrial development, transport terminal, and warehouse uses that benefit from proximity to ports and rail infrastructure and require larger lots due to the scale of activities.*
2. *Non-industrial activities, including food premises-cafe/takeaway, education establishment, shops, offices, rooming accommodation, hotel/motel, and showroom sales, may be established where they directly support and are compatible with the ongoing industrial use of the zone.*

Linked to the above, significant developments are underway in the area to build a new ship lift with an associated marine service area for aligned and ancillary industries and services. There is also an existing barge ramp and hardstand area. More generally, development 'ready' lots are also available in the Darwin Business Park precinct.

It is not immediately clear whether a seafood processing facility falls into the area's zoning. Importantly, it is also not clear whether a seafood processing facility being located at East Arm meets the Government's strategic objectives for industry and development in this area. Consultations with the Land Development Corporation, however, indicated that the Darwin Business park has some similar existing and past uses.

Existing East Arm configuration and operations

Source: Land Development Corporation: https://landdevcorp.com.au/currently_in_develop/marine-service-area/

Sources: Source: Land Development Corporation (link). KPMG analysis.

East Arm Site: Lot 6238

East Arm is home to numerous processing and warehousing facilities in the agri-food and agri-business sectors. These facilities are located within the Darwin Business Park area. Historically, consultations with NT Government stakeholders identified that some NT seafood producers have also used or operated facilities in this area, including potentially with cold stores.

Purchasing or leasing a pre-existing facility in the area could be considered. For example, section 5779 (20 O'Sullivan Circuit) is a 1.5ha site with large power connections (as would be necessary for cold storage). This site was purchased by persons involved in the mango industry for $5.5m in 2017. Wyuna Cold Stores Pty Ltd, who have commenced operations at the new facility at the airport, also have a facility in the East Arm area on section 6186 (2 McCarthy Close) currently for lease. The site is listed for lease at $58,800 (plus GST) per annum and has features including 43.8m2 of freezer and 107.6m2 of chiller.

Purchasing or leasing pre-existing sites in the Darwin Business Park, however, is unlikely to lead to the outcomes desired by the seafood industry and by Government. The location, though industrial, does not offer an alignment to either producers nor to markets. Site size and compatibility with neighbouring businesses may also be inappropriate.

Within the broader East Arm area, one existing vacant site offers potential alignment to strategic needs – lot 6238 (37 Muramats Road). The below pictures illustrate the area:

Sources: Source: Consultations with Land Development Corporation & review of ILIS; KPMG analysis; photos from owner of site.

East Arm Site: Lot 6238

Lot 6238 has the following features, as reported by its private owners:

- 75,100m2 of lettable area (with opportunities to expand).
- Water frontage, with an existing barge landing.
- Water, electricity, NBN and street lighting all in place.
- Belief by owners that the site is development ready, with no geotechnical issues and being clean and compacted.

In addition to being a strong 'development-ready' potential site, there is also considerable alignment with conceptual plans held by the Land Development Corporation (LDC) for the future of the area. Looking at a beyond 2030 horizon, LDC sees the potential for a new marina to be constructed adjacent to this lot. The new marina could service fishing vessels and the NT seafood industry. Conceptual plans can be seen on the right.

The plans shown are at a very preliminary conceptual stage. Preliminary estimates indicate any such development may require more than $300m in capital spending (construction and dredging) and $5m in business case and feasibility work.

Nonetheless, a facility on lot 6238 could in the future be expanded and aligned to the new marina development which would 'back' on to the site.

It should also be noted that if the features of lot 6238 site are attractive, other sites adjacent or nearby could be investigated.

Sources: Details from stakeholder consultation with owner of site; preliminary draft concept map from consultation with the Land Development Corporation.

Airport Locality

Darwin International Airport is unzoned land. In its place, Darwin International Airport seeks to operate pursuant to its 2017 Masterplan (approved by the Federal Minister for Infrastructure). The area in around Osgood Drive is planned for Business and Industry in accordance with Masterplan.

A site at the Darwin International Airport has the least planning restrictions or requirements. Clearing more than one hectare of native vegetation, however, still requires consent and lodging a development application.

A site at the airport could also be aligned to the new NT Airports Multipurpose Export Facility which has begun operations storing and exporting mangos to Asia. The facility is also envisaged to be able to handle meat and seafood in its freezer and cool-rooms. The facility has one notable commercial advantage in that it incorporates an 'airside' area, meaning product can be directly transported from freezer and onto planes with minimal handling, specialised handling and customs clearances. The aim of this approach is to significantly improve product quality and integrity for any Territory produce being loaded into planes.

NT Airports have identified two areas which may be aligned to the strategic intent of a processing facility. One area is development ready with connections, sized to about 5,000-7,500 m^2 . The other area, uncleared and not development ready, could be up to 3 hectares.

NT Airports believe that generally some of their advantages would include:

- Airside access availability
- Prospect for power tariff reduction off the back of Airports Solar assets along with associated green power benefits
- Potential pilot program through a design, construct and lease back whereby a generic facility design could offer potential other uses should the project not be found commercially viable in the long-term.

There would also be variety of ways the commercial land use arrangements could be structured, including potentially leasing through the full term of the Commonwealth head-lease (76 years).

Sources: Source: DIA 2017 Masterplan (link); Information from stakeholder consultation with NT Airports and KPMG analysis.

Potential Development Scenarios

Potential Benefits of an NT Seafood Processing Facility

Economic growth & job creation

Drive economic growth through opportunities to enhance local businesses and providing new ongoing jobs for Territorians

Investment in the NT

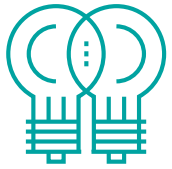
Support further economic development through private investment

Export opportunities

Further promote and develop Darwin as a gateway to Asian markets.

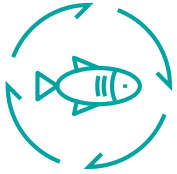
Opportunity to create additional value

Increased opportunities for fishing operators to improve productivity and expand value add products for local and export markets



Innovation and access to technology

Support innovation in the seafood industry and create access to new technology to drive growth and create value



Economic & environmental sustainability

Support the development of economically and environmentally sustainable fisheries

Three options were assessed to determine the preferred model for further exploration

KEY QUESTION		OPTIONS	CONSIDERATIONS
What is the preferred model for a processing facility in the NT?	1	**High Volume Processing**	• Processing of high volume products, with lower value (e.g. fish filets) • Well suited to utilise high volume aquaculture species (e.g. prawns, Barramundi) • Potentially larger facility to enable scale requirements to be met • Potential to utilise traditional waste streams for value added processing
Through workshops with key stakeholders it was identified that the study should focus on the targeted processing option as the most realistic option that also aligned with the NTG objectives identified for this study and with known industry capability	2	**IDENTIFIED AS PREFERED OPTION** **Targeted Processing**	• Processing lower volume with higher value products (e.g. Pearl Oyster Meat, smoked dips) • Support existing high value products (Black Jewfish swim bladder, Trepang) • Smaller facility
	3	**Multi Purpose Processing Facility**	• A multi-purpose facility opens up numerous opportunities for the seafood industry and the NT Government more broadly to deliver a collaborative cross-industry facility for jobs, investment and trade.

Summary - Option 1 - High Volume Processing

Overview

Facility designed to process high volumes of typically mid-range to lower value seafood to increase prices (i.e. B grade produce, commodity species)

Key Users	• Fishers with high volume catch (e.g. Barramundi, prawns, snapper) • Aquaculture producers (e.g. Barramundi) 
Key Customers	• Major supermarkets and seafood retailers • Food Service • Seafood wholesalers COSTCO WHOLESALE raptis PREMIUM SEAFOOD Woolworths coles

Products	• High volume products, with lower value such as:
	  • Fresh or frozen fish fillets
	  • Crumbed and battered products
	• Value added waste streams (e.g. heads, frames) for:
	  • Pet food
	  • Fertiliser
	 
	John West Barramundi With Lemon Myrtle & Murray River Salt Seasoning
	 
	Birds Eye Frozen Fresh Caught Barramundi Crispy Batter Fillets
	 
	De Costi Lemon & Garlic Butter Prawns

Markets	• Products suited to preferences and demand of the domestic market • e.g. domestic demand for Barramundi is high, with 60-70% of demand met through imports. Price is a key driver. • Export potential may be constrained due to cost competitiveness with cheaper processing of comparable products overseas
Other considerations	• Further work is required to determine the capacity for processing technology use across species • A larger facility would have higher capital costs and infrastructure requirements

Summary - Option 1 - High Volume Processing

Potential benefits

- Established and growing supply volumes of key species at industry level
- Technology well established and potentially lower cost
- Value creation from lower grade products and waste streams
- Create capacity to grow under utilised species and markets
- Retain value created from processing in the NT
- Supports innovation and uptake of new technology

"A processing facility could shift the mentality of fishermen and we could move towards being price makers"

"There are high volume fisheries surrounding Darwin that are under utilised because its too far to market"

"We haven't tried to develop the export market as don't have the facilities to process here"

"There are opportunities in producing high quality proteins from waste material"

Risks/Limitations

- Fragmented players may limit aggregation of volumes to make facility viable
- Lack of supporting infrastructure required to support facility and user needs (e.g. cold storage, air freight capacity)
- A large facility would have higher establishments costs and may require port upgrades at additional expense. This would be higher risk.
- Fishers lack understanding of processing and marketing opportunities
- Lack of skilled labour to operate the facility

"Large producers want their own private facility, some already have facilities interstate"

"The most difficult part will be to get the operators to work together in the same direction to get the supply volumes needed"

"Expertise in fishing doesn't equate to having the skills for processing and marketing"

"We would already have done it ourselves if it was worth it"

Sources: Stakeholder consultations. KPMG analysis.

Summary - Option 2 - Targeted Processing

Overview

The Northern Territory currently exports 'commoditised' high value products. The realisation of value through high value niche processing supports the growth of jobs, trade and captures greater value within the Territory economy.

Key Users	• Producers of high value species, potentially including indigenous enterprises (e.g. through a joint venture with an established producer)
Key Customers	• Exporters • High end domestic and international restaurants
Products	• Pre-packaged fish (e.g. premium smoked or cured fish, premium dips) • Ready to eat shellfish / oysters • Ready to export Trepang • Black Jewfish bladders • Pearl Meat • Health / cosmetic products (value added waste stream)
Markets	• Asian markets (e.g. Singapore, Hong Kong, China)
Other considerations	• Potential to leverage brand Australia / NT in export markets • Proximity to Asia and supply of highly prosed products is competitive advantage • Processing equipment may require high level of product specificity, other options such as high pressure processing of shell fish could also be used for processing horticulture products (e.g. avocado) • Export certification required for each product line

Dried Swim Bladder, JD.com

Sea Cucumber Extract, Deep Blue Health

Maxima Pearling, 500g frozen Pearl Meat

Summary - Option 2 - Targeted Processing

Potential benefits

- Suited to smaller facility which may reduce capital requirements and major infrastructure works
- Advanced processing techniques can support food safety and quality
- Competitive advantage in Asia due to proximity and product supply
- Provides opportunities to continue diversification and explore new opportunities
- Retain value created from processing in the NT
- Supports innovation and uptake / development of new fit for purpose technology

"We have been approached for opportunities like smoked Barramundi dip"

"High value demand exists for niche products such as leather goods from Barramundi skin"

"We want to be going straight to the five star hotels [in China]"

"There is opportunity for indigenous engagement with traditional species"

Risks/Limitations

- Low volumes reduce potential economies of scale and greater risk in fluctuations in supply
- Lack of supporting infrastructure required to support facility and user needs (e.g. cold storage, air freight capacity)
- Products have dependence on export markets as domestic demand is often not established
- Fishers lack understanding of processing and marketing opportunities
- Specialised / niche technology may have high cost
- Lack of skilled labour to operate the facility

"We need to develop skillset in international marketing, sales and export"

"We don't have the wide body aircrafts needed for cost competitive freight out of the NT"

"There may not be volume to justify it unless a lot of stakeholder buy in to it"

"If we can't differentiate from cheaper fish then we cannot compete. It's that simple"

Sources: Stakeholder consultations. KPMG analysis.

Summary - Option 3 - Multi Purpose Development Facility

Overview
A multi-purpose facility provides opportunities for Government to build infrastructure that builds capacity and capability across industries and sectors.

Key Users	• Fishers and producers with supply of fish to precinct users (multi-species) • Seafood processors • Retailers who are dealing directly with consumers • Education providers
Key Customers	• Tourists and local consumers • Direct to business • Food and seafood processors • Students

Products	• High value seafood products
	  o Cafe and Restaurants serving fresh seafood
	  o Takeaway fresh, cooked and frozen seafood
	  o Seafood processed for domestic market
	• Education and training relating to seafood or food processing

Markets	• Products targeted toward the Darwin consumer including locals and tourism • Processed seafood products for the broader domestic and export market • TAFE/VET student markets for improving skills and jobs for locals
Other considerations	A multi-purpose facility supports the local market for jobs and trade, however the scalability of the processing facility may be inhibited by location, available real estate and any imposed restrictions

Summary - Option 3 - Multi Purpose Development Facility

Potential benefits

- Precinct can become an identified tourist for precinct for incoming tourist traffic
- Education facilities and up-skill supports jobs
- New opportunities for local businesses to increase revenue
- Potential opportunities with other sectors and businesses (tourism, food manufacture, super yachts)
- Increase value created from processing in the NT
- Strong support from industry and therefore social license

"History shows that co-operative models can work"

"We need to bring many stakeholders to the table – hoteliers, tourism, cafes, restaurants and fishers"

"If odours can be managed there is potential for processing to accompany a market set-up"

"This is the type of project that can bring government and private investment together to benefit Darwin"

Risks/Limitations

- Implications with weather in the NT for year-round use
- We have the products but the challenge is turning support to grow opportunity
- High complexity and cost
- Zoning will dictate the type of facilities that can operate
- Lack of skilled labour to operate the facility

"Marketing is the missing link to support projects like this and we still haven't proven that we can do that"

"The battle will be the NIMBY mentality, this will hold back something scaling"

"The biggest setback is getting quality people and labour"

"Cooking fish, repairing boats and broader processing all have land use conflicts with residential and tourism"

Sources: Stakeholder consultations. KPMG analysis.

Summary - Option 3 - Examples

Example 1 - V&A Waterfront, Cape Town

The V&A Waterfront is an iconic mixed-use facility that is located in Cape Town, South Africa.
The V&A waterfront brings together the rich history and diversity of the **oldest working harbour** in the southern hemisphere, accompanied by **modern touches of elegant restaurants**, **tourist attractions and hotels** to boost the economic opportunity through a collaborative precinct.

The precinct champions sustainability, art and design, and is a driver for positive social and economic change through working alongside communities and businesses to create a culture for a more productive and better way of doing business.

Example 2– Apollo Bay fishing co-op

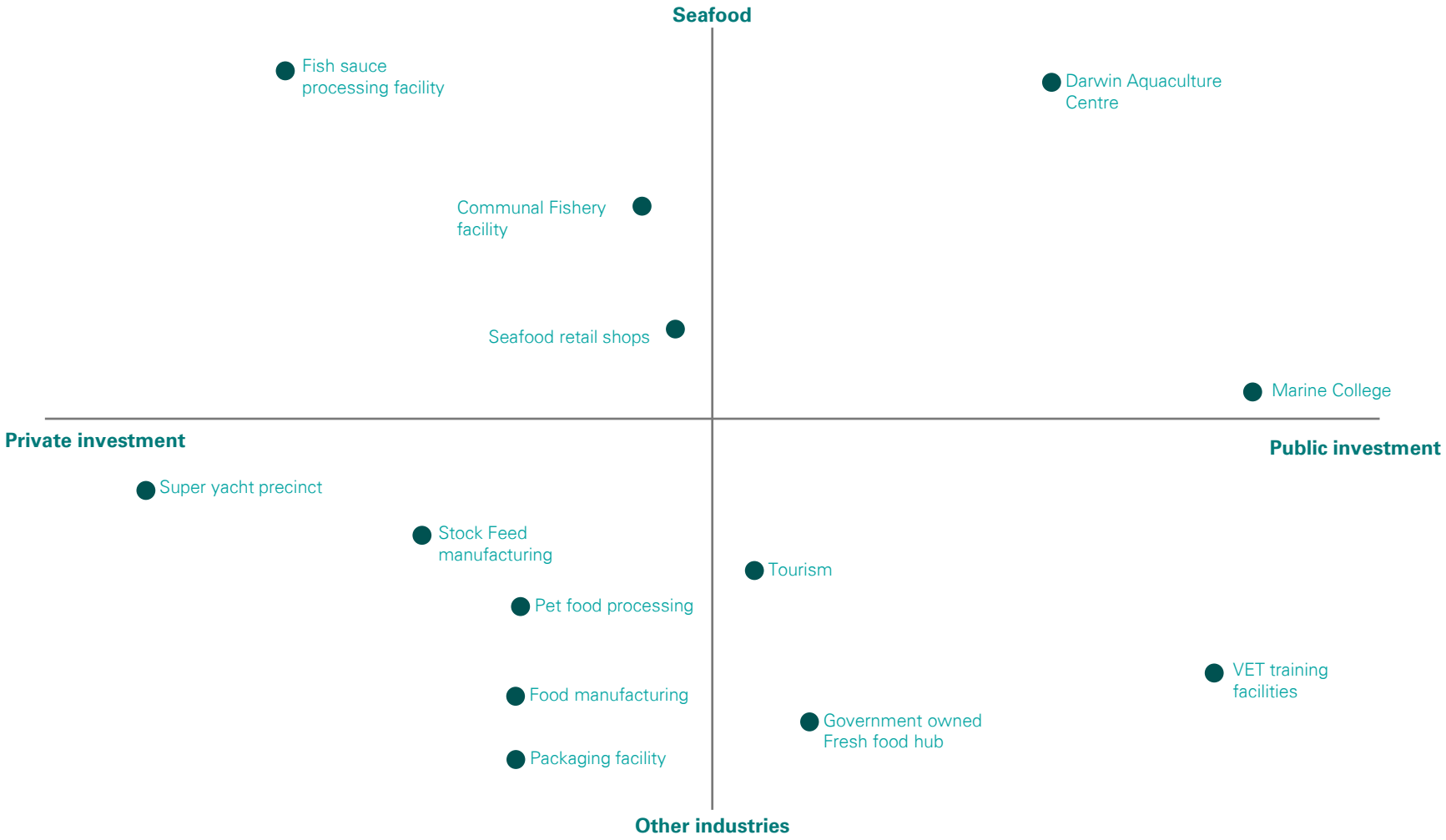
Apollo Bay fishing Co-op has been operational for more than 70 years. As the last working fishing harbour on the Great Ocean Road in southern Victoria **the facility diversified from being an aggregator of fresh seafood product** to now having a fresh seafood café and processing facility. With an **export approved processing facility**, the precinct provides a **locals and tourists** alike with the opportunity to see the process from the boat arriving in the harbour right through to the fresh serving of seafood.

Source: Apollo Bay Fishing co-op

Option 3 - Multi purpose facility opportunities

There is opportunity for the proposed seafood processing facility to integrate with other projects to support the NT Governments vision of collaborative facilities for jobs, investment and trade.

- Collaboration with up-skilling (VET/TAFE) facilities
- Supporting maritime industries (super yacht precinct)
- Tourism and retail
- Waste product processing (pet food, stock feed manufacturing)
- Opportunities for collaboration with food/packaging and manufacturing



Sources: Stakeholder consultations. KPMG analysis.

Potential Models for Development

Model Development Summary

CO-ORDINATION

There is the potential for the seafood industry or key players in a processing facility to look at a co-operative. There is some interest in the industry based on stakeholder feedback.

A successful co-operative is driven by culture and co-ordination. The industry, or key users, may have to consider governance development before embarking on a co-operative model.

If a co-operative is not envisaged, there is likely still a role for Government and the NTSC to assist the co-ordination of a potential key user/producer group.

GOING TO MARKET

It is a priority to capture value here in the NT. Any investment attraction or incentives should be developed and framed with that outcome at their core.

Concepts and potentially interested developers have come and gone over the past few decades. Assisting any new, firm proposals should be a priority.

The ownership of the site is not material (e.g. it does not need to be on Government-owned land).

FACILIATION

Government is very unlikely to have a role in the facility. Government may seek to facilitate development, but a specific project profile and project developer/s will be required first.

Expectations may need to be managed with potential developers about the extent to Government assistance can be provided (e.g. requests for land).

The NT Government has the opportunity to examine the co-location of the facility within a broader infrastructure development.

Government needs to be conscious of not ‘crowding out’ the private sector who will need to drive the project on their own terms.

A number of common governance models were explored in a workshop with NTG staff

KEY QUESTION

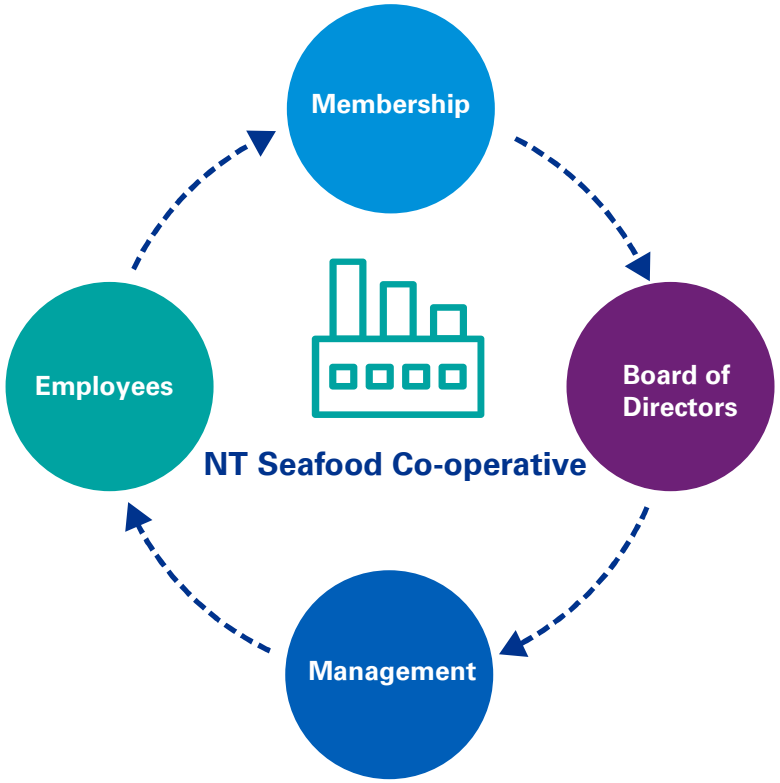
What governance models may be appropriate for a processing facility in the NT?

	OPTIONS	CONSIDERATIONS
1	**Co-operative**	• Co-operative models have been used across the Australian seafood and agriculture industries for some time. • This model aims to ensure industry needs and participation comes first and that by joining as one the industry can exert more power and influence (e.g. moving from price-takers' to 'price-makers'). • NT Government, working with NTSC, could seek to facilitate the development of a NT seafood processing co-operative.
2	**Major corporate agri-business**	• Large vertically integrated companies are often at the forefront of the productions and operation of large seafood and agricultural enterprises in Australia. Well-known examples include the Tasmanian aquaculture and seafood industry. • Government could seek facilitated investment from a major corporate business – more than likely with existing licence holdings or investments in the NT – to build, own and operate a facility.
3	**Market-led private sector approach**	• Government and industry do not need to take an active role in the development of the facility, and instead could allow market forces to either pursue or not pursue the development of a processing facility. • Government and Industry could instead focus on facilitation, in particular seeking to attract investors looking for commercial returns. Understanding investor needs and investing models is therefore important, particularly as individual producers to may still seek participation.

NB: Not exhaustive

Summary - Co-operative model

Australian seafood and agriculture industries have a long history of co-operative enterprises. The aim is to ensure that industry needs and participation comes first and that by joining as one the industry can exert more power and influence (e.g. moving from price-takers' to 'price-makers'). NT Government, working with NTSC, could seek to facilitate the development of a NT seafood processing co-operative.



Advantages

- Equal votes for members
- Economies of scale for input purchases
- Shareholders (members) elect the board of directors to represent their interests
- Increases market power
- Singular entity to represent shareholder needs with government and other affiliated stakeholders
- Consolidated industry standards, marketing and branding

Disadvantages

- Limited profit distribution
- Difficulty to attract members
- Difficulty incorporating large existing market players
- Members have a direct risk / stake in the success or failures of the co-operative
- Members are owners and must be active participants to drive the business

Source: KPMG analysis.

Agri-food Co-operative Examples

Example 1 – Geraldton fishing co-operative

Formed in 1950, The Geraldton Fishing Co-operative (GFC) processes and exports rock lobster globally. With an annual turnover in excess of $400m, 98% of their rock lobster is sold directly into China. GFC supports 500 fishermen, employees and their families.

Key aspects:

- The fishers and licence holders are owners in the end-to-end brand
- Buy in across the supply chain for maintaining and ensuring quality
- Fishers receive better value then selling commodity product
- Direct connections to customers promotes opportunities for continual improvement – Sustainability certifications, investment, R&D and people.

Example 2 – Norco Co-operative

Norco is Australia's largest 100% farmer owned dairy co-operative. It currently has 201 farms under its membership with more than 840 staff across the Norco business. The business recorded a total net profit of $1.9 million in 2017/18.

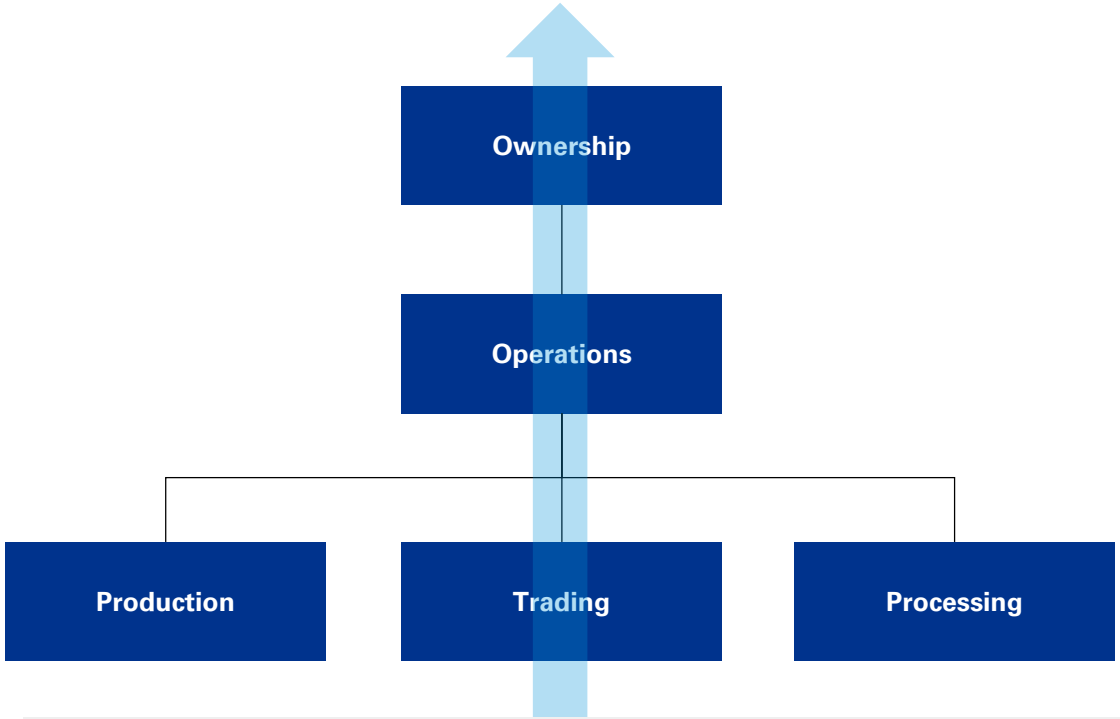
Key aspects:

- Marketing proposition of being 100% farmer owned
- Provide a competitive milk price to suppliers in line with their regions
- Two independent directors and six supplier directors
- Multiple brands that support producer development
- Increase visibility across the supply chain
- Increasing the accountability of each node of the supply chain to support the broader organisation and affiliated members.

Source: Brolos – Geraldton Fishermen's co-operative (link). Norco co-operative (link) KPMG analysis.

Summary - Major corporate agri-business model

Large vertically integrated companies are often at the forefront of the productions and operation of large seafood and agricultural enterprises in Australia, with particularly well-known examples coming from the successful Tasmanian aquaculture and seafood industry. Government could seek facilitated investment from a major corporate business – more than likely with existing licence holdings or investments in the NT – to build, own and operate a facility.



Vertical integration – ownership of entire supply, processing and sales chain aims to drive efficiencies. Degrees of variation can occur around this model with some operations being subcontracted and volume being sourced from primary producers.

Advantages

- Ownership maintains control over decision making
- Privately led enterprise to focused on commerciality
- Ownership owns operations and has 'skin in the game'
- De-risks supply chain
- Integration of value chain activities
- Decreasing the number of 'middle men' along the supply chain
- Economies of scale
- Expertise and experience

Disadvantages

- Operates in the best interest of the company and not necessarily what is best for producers, the industry or the Territory
- Limited protection for small participants in the market
- Increased exposure and reliance on one business
- Increased potential for public scrutiny in business operations
- Potentially excludes members from being part of the facility

Source: KPMG analysis.

Major Corporate Agri-business examples

Example 1 – Huon Aquaculture

Huon Aquaculture started off as a small business in 1986. Through contract growing salmon, they were able to expand the business and begin to gain economies of scale. They maintained this model for 11 years until in 2005 they began to grow, market and sell their own Huon Salmon and Ocean Trout.
Based in Tasmania, Huon employs more than 700 people, farms Huon Salmon and Ocean Trout, and sells fish across Australia and the globe, leading the world in farming technologies.

Key aspects:

- Majority privately owned and listed on the ASX to provide capital for expansion
- Harvest and direct to processing improves the quality of fish
- Increasing ownership over supply chain points supports food safety
- Allows for strategic location for processing facility supports key business activities and ensures access from both farm to export

Example 2 – Australian Country Choice

Australian Country Choice (ACC) is a privately owned, Queensland based cattle, beef and food processing company. ACC supplies more than 150,000 head of cattle annually distributing more than $100 million of chilled and frozen beef products to over 20 countries.

ACC has invested more than $120 million in capital works to develop it's Brisbane facility since 2000. A significant research piece and investment in a packaging solution saw a 20% reduction in overall processing costs.
The whole of supply chain operations include seedstock production, cattle breeding, backgrounding, farming and lot feeding to beef primary processing and multi-species further processing, value-adding, retail packing and distribution.

Key aspects:

- Ownership over the entirety of the supply chain
- Economies of scale increases bargaining power
- Ability to maintain relationships with suppliers who are 'contracted' to supply livestock
- Direct relationships with customers to strengthen brand and increase transparency and information flows

Source: Huon Aquaculture (link). Australian Country Choice (link). KPMG analysis.

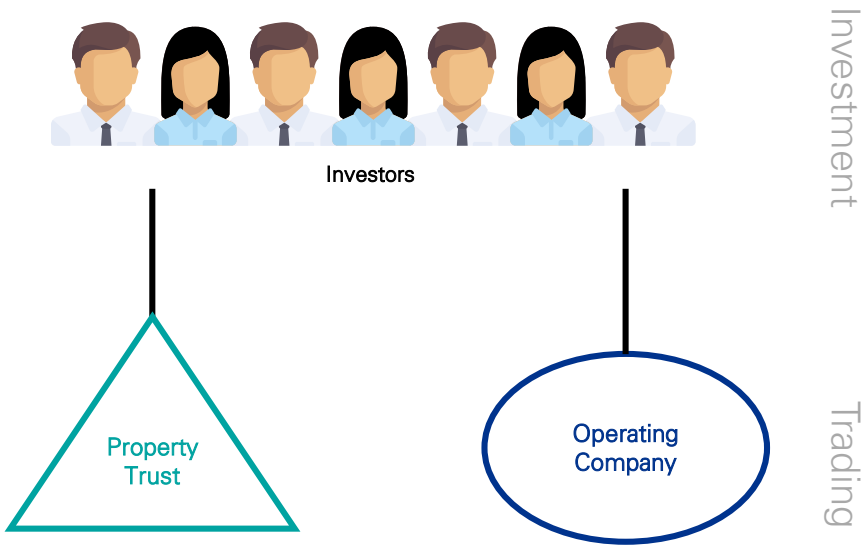
Market-led private sector approach

Government and industry do not need to take an active role in the development of the facility, and instead could allow market forces to either pursue or not pursue the development of a processing facility. Government and Industry could instead focus on facilitation, in particular seeking to attract investors looking for commercial returns. Understanding investor needs and investing models is therefore important, particularly as individual producers to may still seek participation.

Potential for separate assets

- This sort of structure enables the marketability of the two investment opportunities – property or business.
- The segregation may expand the number of interested investors (i.e. a great business operator may not have the capital to develop and own the facility).
- The investment structure is flexible but commonly we see property investors preferring to invest in a trust structure due to available tax concessions.
- Property investment structure can remain inter-changeable until the investors preference are known and they are ready to contract.
- Ability to borrow funds on a special purpose buildings is often constrained compared to ordinary commercial property developments.
- A long term lease agreement may be required to support an investment decision, particularly again if an investor is looking to borrow funds to construct.

Separation of Asset Classes Model



- Property Owner
- Passive Income
- Non-Trading Entity

- Corporate Entity
- Trading Entity
- Rents Property from Trust

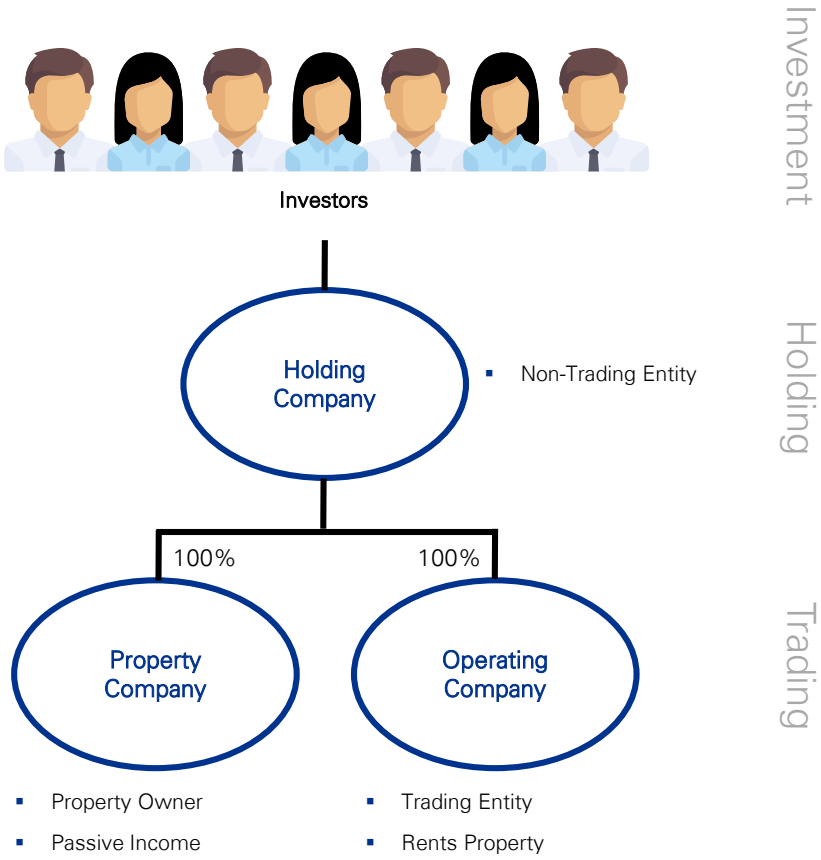
Source: KPMG analysis.

Market-led private sector approach - common investor structure example

Overview

- This sort of structure is common with corporate investors. Investable funds generated by other corporate entities are often constrained. Funds are often unable to be efficiently utilized to develop properties in trust structures and so investors' developments are structured within siloed entities.
- A siloed structure separates activities which have different risk profiles (i.e. passive property asset and seafood processing). This protects passive assets from trading risks but also enables the investments to be divested easily (i.e. retain the property but sell off the seafood processing business).
- Corporate groups also commonly utilize holding company's. This structure enables accumulated profits to be distributed away from trading activities into a passive non-trading entity, thereby protecting the accumulation of wealth for the investors. Protected funds can then be securely lent back into trading entities as required, accumulated or distributed to the investors.
- If investor syndicates are interested in the opportunity, this tiered structure is easier to issue capital in. Trust structures can restrict the number of investors without ASIC approval and thereby increase the minimum investment threshold.

Integrated Siloed Structures Model

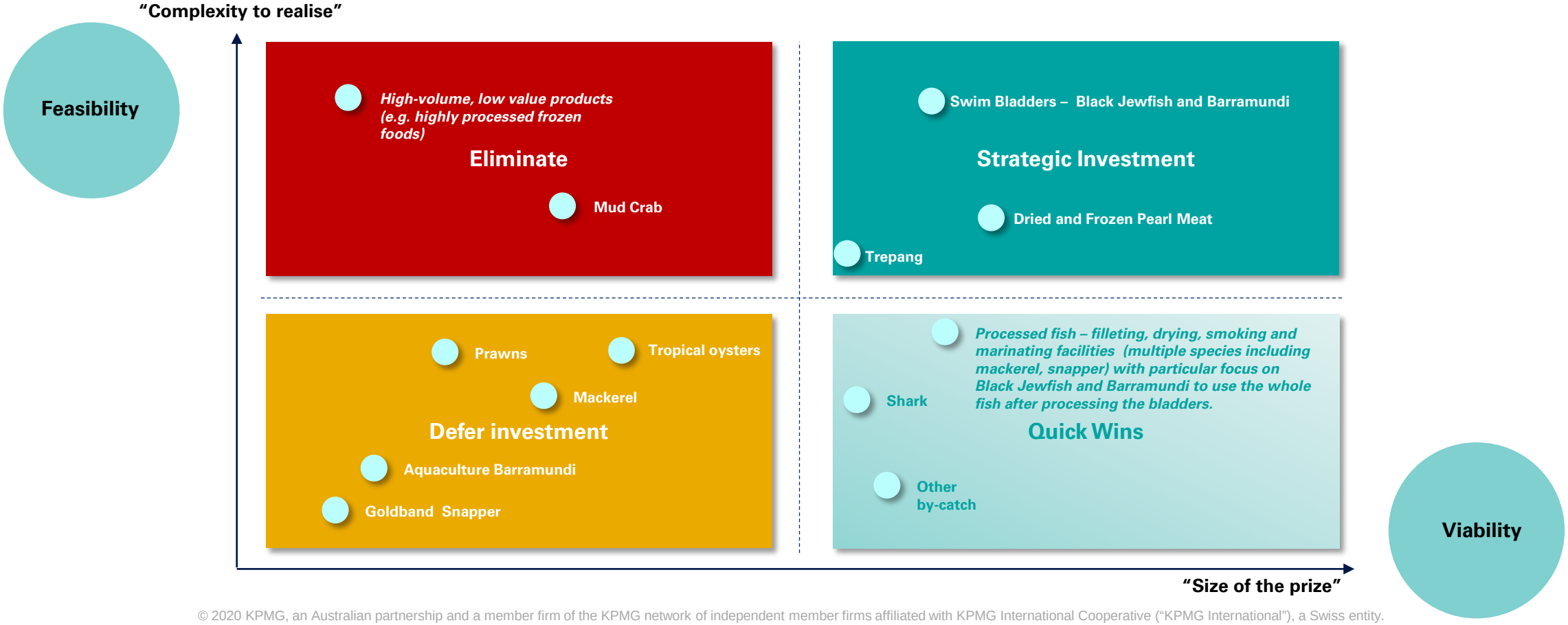


Source: KPMG analysis.

Potentially Feasible Production Scenarios

Strategic choices for production scenarios were considered based on a prioritisation framework.

Production scenarios for a number of species were considered. Quick wins and Strategic Investment scenarios were then explored in detail.



Swim Bladders - Black Jewfish and Barramundi

A number of species in the NT have highly valuable swim bladders that require processing to achieve their full value.

Barramundi and the Black Jewfish are endemic to the NT with processing of their air bladders generating significant value. The drying of air bladders is important to optimise quality which consists of moisture content, colour, size and fragility.

In a study released in 2016, analysis was undertaken by multiple stakeholders including the FRDC (FRDC Project No 2013-711.40) to compare and analyse various methods of processing swim bladders and drying them. The study used conventional drying, frying, non-frying and air drying methods to understand the most favourable way to process swim bladders to maximise quality. The study identified that there are two key barriers to commercial drying:

- Gall bladder staining decreases the overall product quality
- On board processing via current methods does not support optimal product quality

Focusing on this opportunity would require investment in commercial drying operations. Development and refinement of the facility's processes would also be crucial to ensure product quality. Additionally, efforts would need to be made to adequately develop access to crucial export markets, with a focus likely initially on Singapore. Stakeholder consultations have indicated strong industry interest in the development of this opportunity.

Processing options

- Fresh
- Cooked
- Dried

Freight requirements

- Freight requirement ex. Darwin airfreight

Key Markets

- Singapore
- China

Other considerations

- No domestic market, high reliance on exports

Customers

- Exporters
- International

Product examples

- Dried swim bladder for use in soups

Source: FRDC New Opportunities for Seafood Processing Waste (link). 2016 KPMG analysis.

Dried and Frozen Pearl Meat

Pearls aquaculture is a high value industry across Northern Australia. The focus for Pearl aquaculture is the highly valued Pearl, however, the by-product Pearl Meat is a highly sought after product in Asia.

Limited volumes of Pearl meat may not be supportive to year-round processing with estimated volumes of only 4 tonnes per annum from the NT. However, there are strong linkages in the pearling industry between the NT and north-west WA with one major local producer producing a combined interstate figure of approximately 5-8 tonnes per annum.

Blast-freezing technology allows for premium products to be fresh-frozen and exceptional quality can be maintained for both local and export markets.

The processing occurs to remove the meat from the 'mother of Pearl shell' and the Pearl meat can either enter the fresh market or dried.

When dried processing occurs the product can have a saleable value 300% higher than wholesale fresh product.

Development of this product would require drying capacity in Darwin and the potential use of freezing to support a frozen product. There is support to consider Darwin based seafood processing from one of the major NT Pearl meat producers who have an existing strong brand and export currently. There could also be scope to look at an ancillary NT point of sale offering around Pearl meat which has potential to be viewed as the 'beluga caviar' of the NT.

Processing options

- Frozen
- Frozen
- Dried

Freight requirements

- Road for local market
- Via air or sea freight for export markets

Key Markets

- Asia
- Singapore
- China
- Domestic

Other considerations

- Limited producers
- Low tech processing
- Provenance and food safety

Customers

Restaurants
- Wholesalers
- Exporters

Product examples

- Freeze Dried Pearl Meat
- Frozen Pearl meat
- Fresh Pearl Meat

Source: Given the lack of available and current information, stakeholder consultations guided the understanding of production volumes and processing. KPMG analysis.

Trepang

Trepang or 'sea cucumbers' are a highly sought after delicacy in Asian countries. Through value add processing the Northern Territory can realise value that is currently either exported to other states or internationally.

Processing occurs to transform fresh sea cucumber to a dried form and includes cutting, salting, cooking, smoking and drying the sea cucumber. It is a complex and multi-faceted process which would need to be operated and managed efficiently and carefully. Currently, NT Trepang is harvested caught, dried, cut and salted on boat before being trucked (cooled not frozen) to Melbourne for further processing and export.

Along the supply chain there is a requirement from multiple stakeholders to ensure the end quality is maintained, with the opportunity for increasing sales price the incentives are evident for further processing.

The NT's Trepang licences are currently held by major Tasmanian seafood conglomerates. Consultations with Tasmanian Seafoods indicated that there would only be enough volume for processing during a limited number of months per year. However, Trepang has strong potential for sustainable growth using quasi-aquaculture methods – Trepang are quick to grow in nursery and can then be released for maturation before harvesting in 18 months or so. Tasmanian Seafoods are currently developing their site at Berry Springs on this basis.

Harvesting by Aboriginal communities and Traditional Owners on Aboriginal land areas has also been viewed as having good potential both Tasmanian Seafoods and has been a concept investigated previously by the Northern Land Council with the support of Fisheries.

Processing options
- Frozen
- Dried
- Smoked

Freight requirements
- Freight requirements from harvest to processing

Key Markets
- Singapore
- Hong Kong
- China (potential)

Other considerations
- Potential for Indigenous communities
- Low tech processing
- No domestic market, high reliance on exports

Customers
- Exporters
- International

Product examples
- Freeze Dried Sea Cucumber (edible)
- Sea Cucumber Extract (healthcare)

$225/kg
On Hing – Australia Sea Cucumber Small Dried

$400/kg
On Hing Australian Sea cucumber Large Dried.

$ $$$

Source: Given the lack of available and current information, stakeholder consultations guided the understanding of production volumes and processing. KPMG analysis.

Processed fish - filleting, drying, smoking and marinating facilities

Supporting the niche processing facility is the opportunity for lower volume processing that can support the value-add to seafood products including gutting, filleting, smoking and marinating.

There is wide industry interest in the facility, and having additional processing ability will allow more producers and sectors to be part of the processing facility, as well as extending the options of end products.

A multi-processing simple automated option for fish filleting, and additional processes for smoking and marinating, will assist with staged approach to implementation and supports scale up activities in the longer term. Processing the dried swim bladder of Black Jewfish and Barramundi will also allow capture of the remainder of the fish as a secondary product.

Processed fillets and accompanying products from Northern Australia would be more competitive on the domestic market against southern products that have a strong market coverage (such as salmon and trout). Processed fillets and other value-added products could also potentially support any ancillary fish market at the facility.

Specifically, there is potential for shark, sardines and other by catch to be processed and value-added with marinade and similar processes. Without value-adding through processing and marinating, some of those products would more likely than not be by-catch waste or have no market. There was stakeholder support from some producers for these species. Shark has a range of products and markets and can be export-orientated (but lucrative shark fin products will require strong fisheries management and a social licence focus).

The drying facilities of the other key products could also be of use for considering a wider product scope related to dry fish products for Asian markets. This is not a current product or market for the NT, but may have potential with appropriate testing and access. An example raised by producers and stakeholders would be utilising current waste (fish heads) from the existing Darwin based markets and drying them for export sales.

Processing options

- Whole fish (fresh / frozen)
- Fillets (fresh / frozen)
- Smoked product

Freight requirements

- Road for local market
- Via air for fresh product or frozen via sea freight for export markets

Key Markets

- Domestic market
- Darwin (potential)

Other considerations

- Mix of manual labour and automation
- Provenance and food safety

Customers

- Wholesalers
- Retailers
- Fish market

Product examples

- Smoked Barramundi
- Marinated Black Jewfish
- Fresh Barramundi & Black Jewfish fillets
- Sardines
- Dried fish heads (potential)

Source: Stakeholder consultations. KPMG analysis.

Processing technologies and incentives

The following equipment and prices have been provided as a guide, to the considerations that the facility would require at a minimum to support the value-add processing of the identified species.

- **Freezer**
- **Cool Room fridge**
- **Commercial Dehydrator – eight trolley. 240 tray industrial food dehydrator - 70.7m2** Tray Area ($69,995)
  - Overall Dimensions: 4,240(W) x 2,000(H) x 2,200(D)mm
- **Filleting machine**
  - Curio C-2011 - $610,000
  - Process 400g up to 12kg
- **Packaging**
  - MacDue Utility 50 packing machine - Shrink wrap: $46,500
  - Dimensions: 3,340L x 1,150w
  - 30 packs per minute (minimum pack width 25mm-380mm. Length 150mm to 6,000mm. Height 25mm to 300mm
- **Smoking**
  - Kerres Smoke House – Commercial Fish Smoker has capacity for 130kg/hour

These prices were obtained through desktop analysis – additional costs may arise in relation to the specific facility, processes or Darwin location.

Potential Incentive – Temporary business investment allowance

Federal Government incentives as part of Budget 2020 will mean that businesses with aggregated turnover of less than $5 billion will be able to deduct the full cost of eligible capital assets acquired and first used or installed by 30 June 2022. The deduction will be available for new depreciable assets and the cost of improvements to existing eligible assets

	Size/value	Value
Cool room – Fridge (400m^2)	$480-$520/m^2	$200,000
Cool room – Freezer (200m^2)	$480-$520/m^2	$100,000
Dehydrator	-	$69,995
Filleting machine	-	$610,000
Packaging machine	-	$46,500
Smoking Machine	-	$108,000
Total Estimate		**$1.134m**

Potential Incentive - Modern Manufacturing Strategy for pandemic recovery

The Federal Government has released its Modern Manufacturing Strategy. To support the strategy, the Government is committing $1.3 billion to the Modern Manufacturing Initiative. The Initiative will focus on six National Manufacturing Priorities with food and beverage manufacturing as one of the six priority areas. The plan includes a $1.3 billion co-investment fund for large projects in the priority sectors. An additional $107 million will go towards supply chain management, which has been severely affected during the COVID-19 pandemic. The government will also top up a pre-existing manufacturing modernisation fund by $52.8 million, allowing small to medium-sized businesses to take out grants.

An opportunity exists for both these Federal incentive schemes to be investigated in the development of the facility, particularly in relation to the purchase of equipment and machinery.

Source: Commercial Dehydrator (link). Filleting machine (link). Packaging machine (link). Smoking machine (link). LMI Group calculator (link) KPMG analysis.

Minimum Requirements - Commerciality

	Attractive	Further consideration	Not attractive
Target species	• Pearl Meat, Trepang, Black Jewfish Bladders, Barramundi Bladders, general by-product from Black Jewfish and Barramundi, Shark and by-catch (e.g. Sardines)	• Potential for future link to aquaculture increased volumes • Increasing volume and species from a wider geography (e.g. Northern Australia) • Indigenous driven production (e.g. oysters)	• Volume driven, low-value, large-scale processing of fish into products that compete with imports and large scale SE Australian seafood filleting/processing operations
Site	• Established site with existing infrastructure that can be repurposed	• Development ready sites • Sites that Government is making ready in forthcoming years	• Site remediation/rehabilitation requirements • Sites that are too small or complex (environmentally or due to tenure)
Products and Markets	• High-value niche seafood to export markets • High-value bespoke products to SE Australia (e.g. marinates)	• Local Darwin market • Specific high value processed products (e.g. smoked fillets) to SE Australia	• Live export • Frozen export • Low-value, high volume-based products to SE Australia
Capex & Operating Costs	• Minimal (less than $5m) capex • Minimal site acquisition and development costs • Limiting freezer requirements • Efficiency with FTE staff required to operate	• Medium (less than $15m) capex • Concessional loan to finance site acquisition or use, and its development • Facilities around 5,000m^2	• Major ($15m plus) capex, self-financed or commercially financed • Facilities bigger than 10,000m^2 • Extensive machinery, processing, logistics and freezer needs
Investment environment	• Any synergies with Government infrastructure plans (e.g. a facility within a broader areas being developed) • Government support for site development (e.g. roads, service connections, regulatory approvals) • Fisheries management (e.g. total allowable catch) certainty and BMB access agreement finalisation • Government assisting with additional investment attraction (if required) and market access	• Regulatory co-ordination • Government support for accessing quasi-Government investment funds (e.g. NAIF)	• Requirements to co-develop ancillary services or businesses with processing facility • Uncertainty with fisheries management and volumes • Restrictions on access to production areas (e.g. no BMB access agreements) • Social licence risks from lack of support or sustainability for volumes and products

Minimum Requirements - Volume & Values

Pearl Meat	Trepang	Black Jewfish (from within the Coastal Line Fishery)	Barramundi (Wild-caught only)	Offshore Net & Line (Grey Mackerel, Shark)
Export Accredited No	**Export Accredited** Yes	**Export Accredited** Yes	**Export Accredited** No	**EXPORT ACCREDITED** YES
EST. ANNUAL PRODUCTION Approx. 4-6t (approx.5-8t landed in NT)	**EST. ANNUAL PRODUCTION 79.1t**	**EST. ANNUAL PRODUCTION* 3.5t (fish maw) (catch limit 145t Black Jewfish)**	**EST. ANNUAL PRODUCTION 703.8t (whole fish)**	**EST. ANNUAL PRODUCTION 640.8t (TACC for shark of 435t)**
CURRENT EST. VALUE ($M) $Unknown	**CURRENT EST. VALUE ($M)** $0.66m	**CURRENT EST. VALUE* ($M)** (processed outside NT) $2.8m	**CURRENT EST. VALUE ($M)** $5.1m	**CURRENT EST. VALUE ($M)** $4.33m

**Understanding the true value of the existing Black Jewfish bladder industry specifically is difficult in the context of understanding what has been recorded as value, noting there have been historical issues with illegal trade. Anecdotal reports suggest the value of the maw/airbags industry as worth up $4m pre-pandemic which is significantly different to and well-above all data examined.*

The NT's wild-caught fisheries are small in scale – with a value of production worth $47.8 million in 2017-18. By way of local comparisons, the size of industry production in order of magnitude is less than the NT mango industry ($112.8m) or the NT cattle industry ($597.3m) and neither of those industries have established processing industries (though both continue to look at the potential of doing so, and there is some small-scale meat processing outside Darwin). It is very unlikely that there will be sufficient wild-caught volumes and scale to enable medium or large-scale commercial seafood processing in Darwin.

Instead, as identified the potential production scenarios centre around low-volume, high-quality and high-value products. The above table outlines the size of these volumes and their current values.

Minimum Requirements - Example Cost Profile

The Oceanomics Infrastructure Report (2019) commissioned by NTSC provided a general summary of what a potential facility open to the broader industry may cost approximately $12 million plus equipment and machinery. It noted:

"Site preparation costs might vary, therefore, depending on geotechnical inspections, from relatively modest, to potentially $1.5m (assuming no remediation required for contamination). Construction costs for basic processing-only facilities (excluding the processing machinery and fit-out), assuming say 5 operator-occupants with 1,200m^2 each, could average $1,310/m^2 (based on published estimates) for a total of $7.9m, plus say another $2.5m for planning, roadworks, landscaping, utilities. Note that this excludes the cost of processing machinery (which would be the responsibility of the operators)."

A facility of this scale would be unlikely to be economic. Though the specific project, location and operating model would need to be agreed to proceed to a business case, high-level analysis on indictive figures noted in this report would indicate commerciality will be strongly assisted by driving a smaller capex costs. The most important consideration will be ascertaining if a site with existing facilities can be repurposed (e.g. the potential Paspaley site), or co-location with existing facilities that can be used (such as at Darwin Airport) to drive down capex costs. Alternatives to financing – such as through Government grants – should be strongly considered.

HIGH LEVEL INDICATIVE ASSESSMENT BASED ON DESKTOP ANALYSIS AND ASSUMPTIONS
ALL COSTS OF ANY FUTURE FACILITY REQUIRE FUTURE MODELLING AND ANALYSIS INCLUDING TRUE COSTS AT SPECIFIC SITES AND FOR SPECIFIC OPERATIONS

Cost	Minimum per annum	ASSUMPTIONS AND QUALIFICATIONS
Financing (facility build and works $12m)	$504,000	Assumed 5% rate of interest for a secured commercial property development loan (capital and interest) over 25 years.
Staff	$750,000	Assumed 10 Full Time Equivalent (FTE) salary of facility employee, inclusive of superannuation, averaged to $75,000 per person per year.
Equipment	N/A	Capex for this will be an estimated $1m for the facility as a whole. Large operations may require more and different equipment, which would add to costs. This may be an element of costs incurred individually by each user. Additionally, tax concessions may be applicable to those users purchase of equipment. An estimated annual 'new' investment would need to be modelled in any business case.
Operating costs	$720,000	Ongoing facility operating costs (inclusive of utilities, insurances, water rates, local rates, and repairs and maintenance) are based on estimated benchmarks. These costs are calculated as a percentage of the construction cost of the building asset (exclusive of the cost of site works and improvements to the land). The figure used is 6% of building constructions costs (a 45% premium on standard commercial rates to reflect the likelihood of high energy and water usage). Any business case would require itemised true costs based on configuration.
	$1,974,000	***No inflation or discount rates have been factored into the minimum annual costs.***

Minimum Requirements - Example Revenue Profile

The potential revenue flows for any facility is dependent on having a user group with defined volumes contractually committed to through-put for the facility. This type of facility and processing business has never occurred in the NT, and though there is interest across the NT seafood industry, the concept remains untested.

The following are estimated revenues that could be achievable based on existing NT product profiles with conservative production targets and pricing/processing assumptions. Importantly, this does not include a cost for purchasing the products from producers; the below approach would align to the key producers being the key users of the facility for the purpose of maximising value-add in the NT. Product processing assumptions may vary based on suppliers and operations, including the ability and speed taken to scale up to the indicative processing goal.

HIGH LEVEL INDICATIVE ASSESSMENT BASED ON DESKTOP ANALYSIS AND ASSUMPTIONS
REVENUE OF ANY FUTURE FACILITY REQUIRE FUTURE MODELLING AND ANALYSIS

Wild-catch	Initial volume goals	Indicative Processing Goal	Annual product revenue	Assumptions
Black Jewfish Bladders	3.5 tonnes (wet)	1.166 tonnes dried	$583,000	Assumed product price of $500/kg. Throughput based on current NT industry size where processing occurs interstate.
Barramundi Bladders	40 tonnes wet whole fish	0.4 tonnes dried bladder	$100,000	No current NT industry for this product so conservative assumptions have been used and caution should be exercised. Assumed 'small' product price $250/kg that comes from a 40% yield from drying process, bladder size 60 grams from 3kg fish. Actual NT product profile may vary based on suppliers and catch.
Pearl Meat	4 tonnes (wet)	1.2 tonne dried	$480,000	Assumed product price $400/kg. Volume may be variable as 4-8 tonnes are estimate to land yearly through Darwin (combined NT and Kimberly operations). Shrinkage of 70% is assumed based on anecdotal industry feedback.
Trepang	79.1 tonnes	3.955 tonne dried	$889,875	Assumed conservatively $225kg small dried price. Weight conversion from wet to dried product differs by species and will be dependent on the exact processes used. A mid-point assumption of 5% has been used.
Barramundi (fillets)	39 tonnes whole fish minus bladder	15.6 tonnes fillets	$117,000	Assumption of a conservative price of $7.50/kg. Assumption of 3kg fish yielding 40% fillet based on industry feedback. There is an operational assumption that the facility will process the bladders and fillets in a manner to maximise value for both – something that would need to be tested in any business case.
			$2,169,875	***No inflation or discount rates have been factored into the minimum annual revenues. There will also be scope for additional products to be processed.***

Minimum Requirements - Key Users & Operating Model

Northern Territory Fishery profiles (2017-18)

Fishery	Species	Licences (#)	POTENTIAL KEY USERS IDENTIFIED
Timor Reef / Demersal / Spanish Mackerel Fishery	Mackerels, Sharks, Reef Fish	56*	**Austop Fisheries (varied), Atlantis Fisheries (varied)**
Barramundi	Barramundi and Threadfin	14	**Wild Barra Fisheries Pty Ltd**
Other	Molluscs, Oysters, Trepang, Squids and Aquarium species	24	**Tasmanian Seafoods (Trepang)**
Coastal Line Fishery	Black Jewfish, Golden snapper	52**	**Cam Druitt (Big Fat Snapper)**
Pearl Meat	Pearl Oyster	10***	**Paspaley Group**

**As a result of administrative changes in the Timor Reef Fishery and Demersal Fishery, both are now managed by individual transferable quota and no restrictions apply to the number of licences that can be issued or held.*

*** The commercialisation of Black Jewfish bladders through a seafood processing facility may require ensuring alignment to the wider management of the fishery, particularly due to the known black market risks.*

**** The pearling industry is managed under a quota-based system, with two licence types: the Pearl Oyster Fishery Licence (five licences in the NT) which allows for the fishing of wild Pearl Oysters, and the Pearl Oyster Culture Licence (five licences).*

The NT Seafood industry was broadly supportive of the concept of a seafood processing facility in Darwin. However, prioritisation of potential production scenarios means that certain key users stand out in each of the target fisheries and species. These key users would drive the commerciality of any enterprise as volume to the facility will be dependent on their market share. It is recommended that Government work with these identified producers as potential industry partners that may underpin or assist investment in the facility.

The ability to define an operating model that both fairly and commercially corresponds to the needs of these key users as a group will be a key requirement for business case development. The inability to 'land' any of these potential key users will have a detrimental effect on commerciality.

Consultations with an owner of a seafood processing facility in another jurisdiction identified that a facility which processed would likely require a workforce of 10-12 people in processing operations.

However, the workforce profile would be driven in large part by the seasonality of the catch provided to the facility. Trepang, for example, are harvesting for only a few months per year and would likely require an increased workforce for that time. The estimated cost of a workforce for the facility – a key cost in any operating model – is therefore also a key requirement for business case development. Though the creation of jobs is a key priority, the business case must also be commercial.

Minimum Requirements - Commerciality Road-map

The minimum requirements for commerciality will centre on getting as much value-added processing out of a site and facility that has the lowest possible cost profile.

There are a number of strategies to effect that approach:

1. **Prioritise the key users** – a facility that operates on a fee for service model is likely to be marginal, based on our indicative high-level analysis. Attracting the key producers of the target species identified to process at site is likely to be at the core of the most efficient and cost effective business model.
2. **Focus on the strategic opportunities** – our high-level indicative analysis shows that volume does not equate to revenue. The business model should be focused on maximising output of the most high-value products potential products, with other products being ancillary to the commercial 'main game'.
3. **Make use of an existing site or infrastructure alignment** – repurposing a site with existing infrastructure (such as the Paspaley Group site at Frances Bay) will reduce significant capital costs. Alternatively, examining a small bespoke build that aligns to or partners with the recently opened Darwin Airport export facility would also minimise capital costs
4. **Incorporate into a larger development for financing support** – East Arm and the Gobi Desert site both have potential to be the sites of significant new infrastructure developments. A small facility forming part of a large infrastructure project (likely with significant Federal or NT Government spending involved) would be an alternate method of reducing capital costs.
5. **Technology and automation** – ensuring the best value out of equipment purchased should be a priority. Equipment purchases attract significant tax concessions and could limit unnecessary labour costs. Energy and water efficiency should also be a priority and need to be quantified by independent experts during the planning process.
6. **Supply chain and logistics** – squeezing extra value out of the existing NT seafood supply chain is unlikely to occur. The facility should therefore be built to optimise efficiencies (e.g. reduced time for product on site can reduce the cold storage required) and to incorporate it into the broader supply chain. For example, examining the best methodology to supply export markets (freight handlers, plane availability) and reducing handling for boat to markets will be priorities.
7. **Key decisions required before proceeding to business case** – site selection, identification of a key user group (potentially the main producers of the target species), and agreement of an operating model for that group are conditions precedent to the development of a business case.
8. **Co-ordination and facilitation** – NTG and NTSC should aim to drive the decisions required before a business case proceeds. In a competitive industry such as this, there is a qualitive benefit and commercial value in Government and industry playing this active non-participatory role.

Recommendations

Mapping the path forward to help deliver outcomes over a series of horizons.

Horizon 3 (Long term > 6 years)

Establishing additional capacity or capability, including considering new products and markets

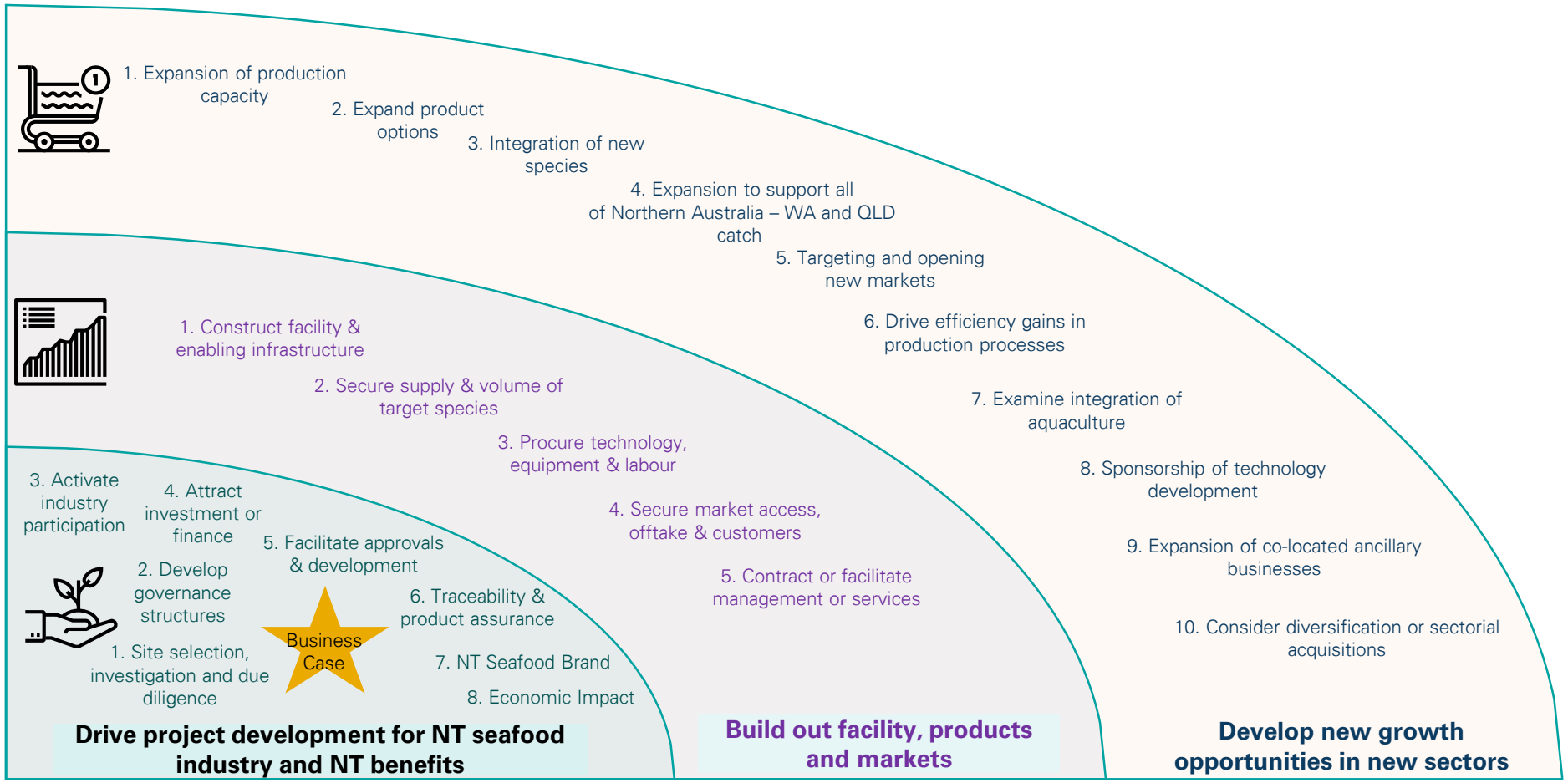
Horizon 2 (Mid term 3 - 6 years)

Build, start and grow the facility, focus on core strategic opportunities in defined markets and products

Horizon 1 (Short term < 3 years)

Establishing new business model and core capabilities

Business Case
The development of a business case is reliant on strategic decisions being made regarding the products, site, participants, operating model and possibly on the integration of the concept into any other NTG developments.



NB: Not exhaustive

Horizon 1 - Short term (<3 years)

Strategic decisions will need to be made to determine an exact concept for proposed development. That concept will then need to be tested through a rigorous business case to ensure viability. This horizon of recommendations is about establishing the business model and core capabilities.

ID	Potential Future Need	Description and additional considerations	Timing	Importance of requirement
1	Site selection investigation and due diligence	Initial work has outlined potential sites that could be explored for a site for a seafood processing facility. Further site assessment, site technical investigations and potentially commercial negotiations will be required for each site being considered.	<3 years	HIGH
2	Develop governance structure	Government and the NTSC have both indicated a willingness to drive a potential NT seafood stakeholder group towards progression of the processing facility. This will result in a new approach to increased industry collaboration and may take considerable time and effort to effect a new co-operative or industry-coordinated governance model and culture.	0-2 years	HIGH
3	Activate industry participation	Identifying and understand which producers/fisheries are interested in the short term as well as garnering a critical mass and commercial scale of support will be incredibly important to the overall success of turning this concept into a reality.	0-2 years	HIGH
4	Attract investment and finance	Decisions on the site selection, governance structure and extent of industry participation will lead to defining the scope or scale of investment and funding required to be attracted to the project in the form of financing or outside investment.	<3 years	HIGH
5	Facilitate approvals and development	Development of the required approvals at various levels to enable the development of the facility through Horizon 2. At a minimum, this will include planning and environmental approvals.	<3 years	HIGH
6	Traceability and product assurance	Key in supporting the project is the ability to support and activate the differentiation of NT products. This will support market demand and support businesses in the long term	<3 years	MEDIUM
7	NT Seafood Brand	There is need to consider the development of an NT seafood brand (of possibly Northern Australia seafood brand). Products from any seafood processing facility could be a driver of that brand.	0-1 years	MEDIUM
8	Economic Impact	The data on the economic impact of the NT seafood industry is poor. A study on the economic contribution of commercial wild-catch fisheries and aquaculture to community wellbeing in the NT, including the economic impacts such as multiplier effects and employment and contributions to related sectors within regions, would fill an obvious need of industry and Government.	0-1 years	LOW

Horizon 2 - Mid-term (3-6 years)

Build, start and grow the facility, focus on core strategic opportunities in defined markets and products.

ID	Potential Future Need	Description and additional considerations	Timing	Importance of requirement
1	Construct facility & enabling infrastructure	Supporting Horizon one is the physical erection of the processing facility and affiliated external infrastructure	3-5 years	HIGH
2	Secure supply & volume of target species	Supporting the facility will be a consistent supply of volume and quality to ensure the optimum utilisation of resources	3 years	HIGH
3	Procure technology, equipment & labour	Ensuring the operation is efficient is the utilisation of existing and modern technology to support processing and maximise the quality of end products through skilled labour.	3 years	HIGH
4	Secure market access, offtake & customers	Understanding of key markets and growth opportunities are paramount to the success of the facility.	3-6 years	MEDIUM
5	Contract or facilitate management or services	Following the establishment of the governance structure the organisation will require a skilled and capable team to facilitate the management of the facility day-to-day.	3 years	HIGH

Horizon 3 - Long term (>6 years)

Establishing additional capacity or capability, including considering new products and markets

ID	Potential Future Need	Description and additional considerations	Timing	Importance of requirement
1	Expansion of production capacity	With anticipated growth the facility will be required to expand physical infrastructure to support emerging opportunities	>6 years	MEDIUM
2	Expand product options	Utilisation and increasing the value of NT seafood is the utilisation of more products for the downstream nodes of the supply chain	>6 years	MEDIUM
3	Integration of new species	Supporting the expansion to new downstream products is the opportunity to expand input species with other NT key fisheries and emerging opportunities	>6 years	MEDIUM
4	Expansion to support all of Northern Australia – WA and QLD catch	With its strategic location the facility has the opportunity to be a 'hub' for all of Northern Australia with value add processing and sales into both the domestic and export markets	>6 years	MEDIUM
5	Targeting and opening new markets	New and emerging markets will become available for processed seafood and the operation can move to expansion into these markets	>6 years	MEDIUM
6	Drive efficiency gains in production processes	Improving the operational performance of the facility will be supported with the specialisation of seafood processing in the NT	>6 years	HIGH
7	Examine integration of aquaculture	With interest and opportunities for aquaculture expansion in Northern Australia there will be opportunities for the facility to support emerging species and volumes	>6 years	HIGH
8	Sponsorship of technology development	Supporting Australia's position as a market leader in Agrifood technology is the opportunity for the NT seafood processing facility to be a market leader in cutting edge technology	>6 years	MEDIUM
9	Expansion of co-located ancillary businesses	Beyond seafood processing the facility can co-=locate with other food manufacturing and value add businesses. This consideration should be reflected in the site selection	>6 years	LOW
10	Consider diversification or sectorial acquisitions	Looking at opportunities beyond seafood and into other food products will look to support ID 9 the expansion of co-located businesses and potential products.	>6 years	MEDIUM

Appendix: Seafood Processing Case Studies

Case Study

Vertically Integrated Mussel Producer

Spring Bay are increasing the value of their products through processing and market differentiation.

Spring Bay Seafood is a Tasmanian mussel producing company. Spring Bay grows the mussels from a commercial hatchery operation after which they are transferred to suspension lines to grow out in deeper water.

They clean, process and pack all their products on-site at their facilities in Tasmania. The facility allows them to pack product to consumer preferences, i.e. fresh and alive, pre cleaned and ready to cook or pre-cooked and flavoured for at home consumption.

Spring Bay has recently become the first company in Australia to market clean shaven mussels. The company has installed an innovative system at its state-of-the-art processing facility that removes the beard and leaves the mussel looking well groomed and ready for the pot.

Marketing of the product also focuses on provenance, sustainability and organic certification which command a premium in the market.

Spring Bay's ability to vertically integrate from production to processing and then direct to consumers demonstrates how differentiation can generate value capture opportunities along the supply chain.

Spring Bay's market premium

Learnings from this study…

1. Significant value can be created through processing of packaged products that are aligned to consumer preferences.
2. Packaged products also enable value capture by allowing better marketing of provenance, sustainability and other unique product attributes.

Source: Spring Bay Seafood Website. KPMG analysis.

Case Study

Tasmanian Salmon

The Tasmanian Salmon industry is the largest fish industry in Australia with a value of around $500m. The majority of Australian salmon farming is located in Tasmania. In 2015 Huon Aquaculture opened the most advanced seafood processing facilities in the world.

Huon is the second largest salmon producer and processor in Tasmania, producing more than 25,000 tonnes of salmon annually.

As a growing business with limited real estate for the growing business to support upgrades to facilities and waste treatment, Huon embarked on a plan to invest in a world leading seafood processing facility.

As a vertically integrated business Huon undertook a feasibility study to look at options of value add processing, recommended sites and ultimately the build a world class facility with the support of private and public investment.

The smokehouse and Product Innovation Centre marked a $12 million investment and the creation of 70 jobs for the region. The consolidation of existing infrastructure was forecast to save $1 million in processing costs in Year One.

The centre produces up to 14,000t of head-on-gutted fish a year.

Improving the capacity for the facility to process the fish pre-rigor (before its muscles start to stiffen) will extend its shelf life dramatically.

Learnings from this study…

1. The processing facility was able to secure private and public funding to support construction in return supporting local jobs
2. A key driver for processing facility is end product quality and time to processing and subsequent time to market is paramount to a high quality product

Source: ABC, Huon aquaculture hopes value-added business will be smoking success. Accessed 13 August 2020. Available here. KPMG analysis.

Case Study

Value added by-products: Premium Pet Food

The rise in premium pet food is creating additional potential value streams from by-products of protein processing.

Increasingly, pet owners are purchasing pet foods that reflect their own food values and beliefs. This is being seen through the rise of premium pet foods, for example gourmet, organic, free range and gluten free product ranges.

All Fish For Dogs is an Australian premium pet food business that is turning seafood by-products into high value, nutritious dog treats. In Australia, this market is worth $185 million. Their products are aimed at the premium end of the dog treat market, marketed and priced as a wild-caught, organic products.

The company takes offcuts from fishers, such as the tails of Spanish or Grey Mackerel and further trimmings from seafood processors to create their products via slow dehydration.

All Fish for Dogs have 25 products which are sold wholesale, in bulk and to national pet shop chains. They also sell via their retail brand, Fishtastic Dog Treats. Products include tails, skins, cartilage, pellets and meal toppers.

All Fish for Dogs have over 25 premium products made from seafood by-products

Learnings from this study…

1. Traditional protein by-products can create an additional value stream for further processing.
2. Branding and marketing are key to creating additional value by connecting to consumers demand for organic, sustainable, wild caught, or Australian product.

Source: Fish-X (link). Fishtastic Dog Treats website, KPMG analysis.

KPMG.com.au

Final Report

November 2020