


A thick red vertical bar is positioned on the left side of the page, extending from the top to the middle section.

## **ECONOMIC AND SOCIAL INDICATORS FOR THE NSW SEA URCHIN AND TURBAN SHELL FISHERY IN 2020/21**

A Report for the Department of  
Primary Industries

10 February 2023

A thick red vertical bar is positioned on the left side of the page, extending from the bottom section to the middle section.



Prepared by

## **BDO EconSearch**

Level 7, BDO Centre,  
420 King William Street  
Adelaide SA 5000

Tel: +61 (8) 7324 6190

<https://www.bdo.com.au/en-au/econsearch>

## TABLE OF CONTENTS

Tables .....	iv
Figures.....	iv
Abbreviations .....	v
Acknowledgments.....	v
Glossary .....	vi
Document History and Status .....	ix
Summary .....	x
1. Introduction .....	1
2. Survey of Fishing Businesses .....	4
2.1. Survey of Fishing Businesses, 2019/20 .....	4
2.2. Update Survey of Fishing Businesses, 2020/21 .....	4
3. Catch, Value, Prices and Markets .....	5
4. Financial Indicators .....	6
4.1. Financial Performance .....	6
4.2. Assets, Liabilities and Equity .....	11
5. Economic Contribution .....	12
5.1. Economic Contribution to New South Wales .....	13
6. Net Economic Return .....	15
7. Demographics .....	16
8. Social Indicators .....	17
8.1. Perceived Compliance with Fishing Rules and Regulations .....	17
8.2. Perceptions of Fisheries Management .....	18
8.3. Satisfaction with Fishing .....	18
8.4. Global Life Satisfaction .....	19
8.5. Satisfaction with Future Security.....	19
References .....	20

## TABLES

Table S-1	Summary of key economic indicators for 2020/21 .....	x
Table 2-1	Survey sample from 2021 in the Sea Urchin & Turban Shell fishery .....	4
Table 2-2	Survey sample from 2022 in the Sea Urchin & Turban Shell fishery .....	4
Table 3-1	Catch, GVP and markets for Sea Urchin & Turban Shell fishery in 2020/21 .....	5
Table 4-1	Financial performance of the average business in the Sea Urchin & Turban Shell fishery in 2020/21 .....	7
Table 4-2	Financial performance in the Sea Urchin & Turban Shell fishery in 2020/21, average business in each profitability quartile .....	8
Table 4-3	Financial performance in the Sea Urchin & Turban Shell fishery in 2020/21, average business in each days fished quartile .....	9
Table 4-4	Financial performance in the Sea Urchin & Turban Shell fishery in 2020/21, average business in each fishery specialisation group .....	10
Table 4-5	Assets, liabilities and equity in the Sea Urchin & Turban Shell fishery in 2020/21 .....	11
Table 5-1	Economic contribution to New South Wales of the Sea Urchin & Turban Shell fishery in 2020/21 .....	13
Table 6-1	Net Economic Return of the Sea Urchin & Turban Shell fishery in 2020/21 .....	15
Table 6-2	Sensitivity of Net Economic Return .....	15

## FIGURES

Figure 1-1	Revenue share and days fished of businesses in the Sea Urchin & Turban Shell fishery in 2020/21 .....	1
Figure 1-2	Input price indicator <sup>a</sup> trends, 2017/18 to 2020/21 financial years .....	3
Figure 7-1	Demographic profile of the Sea Urchin & Turban Shell fishery in 2019/20 .....	16
Figure 8-1	Perceptions of fisher compliance in the Sea Urchin & Turban Shell fishery, 2020/21 <sup>a</sup> .....	17
Figure 8-2	Perception of fishery management in the Sea Urchin & Turban Shell fishery, 2020/21 <sup>a</sup> .....	18
Figure 8-3	Fishing satisfaction in the Sea Urchin & Turban Shell fishery, 2020/21 <sup>a</sup> .....	18
Figure 8-4	Life satisfaction in the Sea Urchin & Turban Shell fishery, 2020/21 <sup>a</sup> .....	19
Figure 8-5	Satisfaction with future security in the Sea Urchin & Turban Shell fishery, 2020/21 <sup>a</sup> .....	19

## ABBREVIATIONS

ABARES	Australian Bureau of Agriculture and Resource Economics and Science
CPI	Consumer Price Index
DPI	the Department of Primary Industries
fte	full-time equivalent
GOS	Gross Operating Surplus
GVP	Gross Value of Production
GSP	Gross State Product
GRP	Gross Regional Product
NSW	New South Wales
PWI	Personal Wellbeing Index

## ACKNOWLEDGMENTS

In the preparation of economic and social indicators for the NSW commercial fisheries, BDO has relied heavily on the voluntary cooperation of fishing operators in providing data for the surveys. We are particularly grateful for the time and cooperation generously provided by fishing businesses in responding to the rather lengthy questionnaire. BDO is also indebted to the members of the Commercial Fishing NSW Advisory Council, Professional Fishers Association and the Sydney Fish Market for providing the necessary information, advice and support. NSW DPI officers provided assistance, were supportive of the data collection and offered valuable advice which was much appreciated.

## GLOSSARY

**Active Business:** refers to a fisher operating a fishing business which fished at least one day during the relevant period.

**Beach Price:** refers to the unimproved price received by commercial fishers when landing their catch at the beach, wharf or port (also referred to as wharf price and comparable to farm gate price), and is generally expressed in terms of \$/kg or \$/unit. Processing margins are not included in the beach price as processing operations are assumed to occur further along the value chain. The use of beach prices also removes the effect of transfer pricing by the firm if it is vertically integrated into the value chain.

**Boat Business Profit:** is defined as *Gross Operating Surplus* less *Depreciation* less *Owner-operator and Unpaid Family Labour*. Boat Business Profit represents a more complete picture of the actual financial status of an individual firm, compared with Gross Operating Surplus, which represents the cash in-cash out situation only.

**Boat Cash Income:** is defined as *Gross Operating Surplus* less imputed wages for owner- operator and unpaid family labour.

**Boat Gross Margin:** is defined as *Gross Income* less *Total Boat Variable Costs*. This is a basic measure of profit which assumes that capital has no alternative use and that as fishing activity (days fished) varies there is no change in capital or fixed costs.

**Cost of Management:** in a commercial fishery management services will generally include biological monitoring and reporting; policy, regulation and legislation development; compliance and enforcement services; licensing services; and research. Approximated by licence fees in this report.

**Days Fished:** refers to the number of days fished by a fishing business throughout the relevant period.

**Depreciation:** Depreciation refers to the annual reduction in the value of working capital due to general wear and tear or the reduction in value of an item over time. Note this is a measure of economic depreciation not accounting depreciation<sup>1</sup>.

**Employment:** is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number (total jobs) or full-time equivalent (fte) jobs. One fte is considered to be 37.5 hours for 42 week per year.

**Equity:** Commercial fishing businesses in New South Wales utilise valuable fishery shares, vessels or vehicles and other working capital. They may hold cash and may also hold debt to finance the business and other liabilities. The total assets held by a business less its total liabilities is the business' equity, which can be expressed in dollar terms or as a percentage of total asset value.

**Fishing Business:** for the purpose of this report is an economic entity rather than a legal entity and is defined by Fishing Business ID or Authorised Fisher ID.

**Gross Operating Surplus (GOS):** is defined as *Gross Income* less *Total Boat Cash Costs* and is expressed in current dollar terms. GOS may be used interchangeably with the term *Gross Boat Profit*. A GOS value of zero represents a breakeven position for the business, where *Total Boat Cash Costs (TBCC)* equals *Total Boat Cash Receipts (TBCR)*. If GOS is a negative value the firm is operating at a cash loss and if positive the firm is making a cash profit. GOS does not include a value for owner/operator wages, unpaid family work, or depreciation.

---

<sup>1</sup> Accounting depreciation allocates the cost of an asset over its useful life.

**Gross Regional Product (GRP) and Gross State Product (GSP):** is a measure of the net contribution of an activity to the state/regional economy. Contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. It can also be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land).

**Gross Value of Production (GVP):** refers to the value of the total annual catch for individual fisheries, fishing sectors or the fishing industry as a whole, and is measured in dollar terms. GVP, generally reported on an annual basis, is the quantity of catch for the year multiplied by the average beach price.

**Household Income (economic contribution):** is a component of Gross State Product (GSP) and Gross Regional Product (GRP) and is a measure of wages and salaries, drawings by owner operators and other payments to labour including overtime payments and income tax, but excluding payroll tax.

**Owner-operator and Unpaid Family Labour:** in many fishing businesses there is a component of labour that does not draw a direct wage or salary from the business. This will generally include owner/operator labour and often also includes some unpaid family labour. The value of this labour needs to be accounted for which involves imputing a labour cost based on the amount of time and equivalent wages rate. In the above calculations this labour cost can be included simply as another cost so that *Gross Operating Surplus* takes account of this cost. Alternatively, it can be deducted from GOS to give a separate indicator called *Boat Cash Income* in this report. Owner-operator and unpaid family labour is separated into variable labour (fishing and repairs and maintenance) and overhead labour (management and administration).

**Profit at Full Equity:** is calculated as *Boat Business Profit* plus *leasing of building, equipment & quota transfer* payments less *depreciation* associated with leased capital. Profit at Full Equity represents the profitability of an individual fishing business, assuming the business has full equity in the operation, i.e. there is no outstanding debt associated with the investment in working capital so equity is 100%. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

**Rate of Return on Capital:** is calculated as *Profit at Full Equity* divided by *Working Capital* multiplied by 100. In this calculation, the value of leased equipment or transferred quota is capitalised and added to *Working Capital* to represent a 'full equity' scenario. This measure is expressed in percentage terms and is calculated for an individual fishing business. It refers to the economic return to the total investment in capital items, and is a useful relative measure of the performance of individual firms. Rate of return to capital is useful to compare the performance of various fishing businesses, and to compare the performance of other types of operators, and with other industries.

**Sample Size:** unless otherwise specified, is the survey sample size from the 2019/20 base year survey and not the update survey conducted in 2020/21. This is because the 2019/20 survey provided most of the information for the 2020/21 indicators. The 2020/21 survey collected few data points to update the 2019/20 indicators.

**Total Boat Cash Costs (TBCC):** defined as *Total Boat Variable Costs* plus *Total Boat Fixed Costs*

**Total Boat Fixed Costs:** are costs that remain fixed regardless of the level of catch or the amount of time spent fishing. As such these costs, measured in current dollar terms, are likely to remain relatively constant from one year to the next. Examples of fixed cost include:

- insurance
- administrative and industry fees
- office & business administration (communication, stationery, accountancy fees)

- interest on loan repayments and overdraft
- leasing.

**Gross Income:** refers to the cash receipts received by an individual firm and is expressed in dollar terms. *Gross Income* is calculated as catch (kg) multiplied by ‘beach price’ (\$/kg). Total boat income is the contribution of an individual fishing business to the GVP of a fishing sector or fishery.

**Total Variable Cost:** are costs which are dependent upon the level of catch or, more commonly, the amount of time spent fishing. As catch or fishing time increases, variable costs also increase. Variable costs are measured in current dollar terms and include the following individual cost items:

- fuel, oil and grease for the boat
- bait
- ice
- provisions
- crew payments
- unscheduled repairs & maintenance.

**Working Capital:** includes capital items that are required by the fishing business to earn the gross income<sup>2</sup>. It includes boat hull, engine, electronics and other permanent fixtures and tender boats. Other capital items such as motor vehicles, sheds, cold-rooms, and jetty/moorings are included to the extent that they are used in the fishing business.

---

<sup>2</sup> Working capital should not be confused with financial capital which is money provided by lenders for a price (interest).



## DOCUMENT HISTORY AND STATUS

Doc Version	Doc Status	Issued To	Qty elec	Date	Reviewed	Approved
1	Draft	DPI Fisheries	1 Word 1 PDF	14/12/22	ADM	ADM
2	Final	DPI Fisheries	1 Word 1 PDF	10/02/23	ADM	ADM

---

Printed: 9/02/2023 3:08:00 PM

Last Saved: 9/02/2023 3:08:00 PM

File Name: [https://bdocomau.sharepoint.com/sites/BDOEconSearch/Shared Documents/NSW Indicators/FY21/Draft Reports\\_230210/Economic\\_and\\_Social\\_Indicators\\_FY21\\_Sea Urchin and Turban Shell\\_230210.docx](https://bdocomau.sharepoint.com/sites/BDOEconSearch/Shared Documents/NSW Indicators/FY21/Draft Reports_230210/Economic_and_Social_Indicators_FY21_Sea Urchin and Turban Shell_230210.docx)

Project Manager: Anders Magnusson

Principal Author/s: Jasmine Douglas, Michael Di Paolo and Anders Magnusson

Name of Client: Department of Primary Industries

Name of Project: Economic and Social Indicators for the NSW Sea Urchin and Turban Shell Fishery in 2020/21

Document Version: 2

Job Number: 2033

## SUMMARY

This report presents economic and social indicators for the Sea Urchin & Turban Shell fishery for 2020/21. This forms the second consecutive financial year of annual indicators. BDO EconSearch was contracted by the Department of Primary Industries (DPI) to develop an independent economic and social indicator monitoring program to inform stakeholders with published financial, economic and social information about commercial fisheries in New South Wales (NSW). The objective is to inform discussions and decisions about fisheries management and to develop an understanding of the values supported by the industry. This report is complemented by a more detailed report 'Economic and Social Indicators for NSW Commercial Fisheries for 2020/21' (BDO EconSearch 2023) that describes the monitoring program in detail and presents results for all NSW commercial fisheries.

A summary of key indicators is provided in Table S-1. In 2020/21, the Sea Urchin & Turban Shell fishery produced \$0.6m in gross value of production (at beach price) from a catch of 162t. The fishery generated -\$0.6m in net economic return. Including flow-on contributions to the broader economy, the fishery supported \$1.3m of gross state product and 19 fte jobs in NSW. Fishery performance generally declined across most indicators between 2019/20 and 2020/21 due to a decrease in price and despite an increase in catch.

**Table S-1 Summary of key economic indicators for 2020/21**

Indicator	2019/20	2020/21
Catch (t)	126t	162t
Days Fished	407	432
Gross Value of Production (beach price) (\$m)	\$0.5m	\$0.6m
Active Businesses	18 businesses	24 businesses
Rate of Return on Total Boat Capital	-10.1%	-10.5%
Fisheries fees/Gross Value of Production <sup>a</sup>	5.1%	4.5%
Active Endorsement Value per Active Business <sup>a</sup>	\$58,889	\$58,229
Gross State Product (direct + flow-on) (\$m)	\$1.6m	\$1.3m
Employment (direct + flow-on)	18 fte jobs	19 fte jobs
Net Economic Return (\$m)	-\$0.5m	-\$0.6m
Net Economic Return/Gross Value of Production	-96.3%	-103.4%

<sup>a</sup> Active Endorsement Value refers to the value of endorsements held by active fishers.

Source: BDO EconSearch analysis

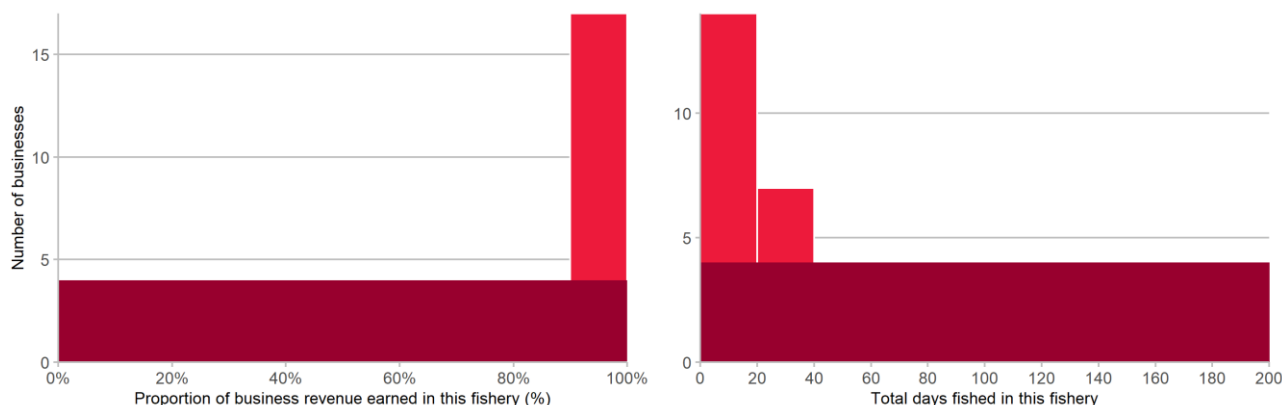
## 1. INTRODUCTION

This report presents economic and social indicators for the Sea Urchin & Turban Shell fishery for 2020/21. BDO EconSearch was contracted by the Department of Primary Industries (DPI) to develop an independent economic and social indicator monitoring program to inform stakeholders with published financial, economic and social information about commercial fisheries in New South Wales (NSW). The objective is to inform discussions and decisions about fisheries management and to develop an understanding of the values supported by the industry. This report is complemented by a more detailed report ‘Economic and Social Indicators for NSW Commercial Fisheries for 2020/21’ (BDO EconSearch 2023) that describes the monitoring program in detail and presents results for all NSW commercial fisheries.

The Sea Urchin and Turban Shell fishery is a small restricted fishery within New South Wales. Generally, sea urchin and turban shells are hand gathered by divers. Fishing occurs throughout the year depending on target species and for sea urchins specifically when the roe is well developed. The red sea urchin has size limits and has catch capped by a total allowable commercial catch yearly limit. There are also catch limits depending on which of the 5 regions a fisher is operating in.

The variation in businesses in the Sea Urchin & Turban Shell fishery in terms of proportion of revenue earned within the Sea Urchin & Turban Shell fishery and total days fished is presented in Figure 1-1. Each visible bar represents at least 5 businesses for confidentiality reasons. The burgundy band along the horizontal axis covers the area between 0 and 4 businesses to ensure confidentiality. The limits of the horizontal axis are set to show non-confidential data only which means there may be businesses with greater days fished than the maximum axis values.

Figure 1-1 Revenue share and days fished of businesses in the Sea Urchin & Turban Shell fishery in 2020/21



Source: 2022 business survey

### Data

The indicators are based on confidential surveys of fishing businesses undertaken in 2021 and 2022, and administrative data provided by Department of Primary Industries (DPI). Survey data are confidential and BDO EconSearch will not provide individual data to DPI in any form that is not also appropriate to be published publicly, such as by aggregating responses into groups of at least 5 for any statistic (see BDO EconSearch 2023 for details). All results in this report are calculated from a representative model of the fishery developed from survey data. At a high level, the data collected include:

- Survey data:
  - Itemised costs of fishing, business administration and associated processing
  - Species prices and market destinations

- Share values
- Quota values
- Working capital values (e.g. vessel, vehicles, buildings and equipment)
- Perceptions of management, lifestyle and wellbeing.
- Department of Primary Industries data:
  - Fisher level fishing activity such as catch by species and effort, including spatial and temporal dimensions
  - Share ownership and trading
  - Licence fees
  - Disposal details
  - Species prices provided by Sydney Fish Market (as a contingency for gaps in survey based prices only).

## Method

Indicators were produced through a number of techniques including:

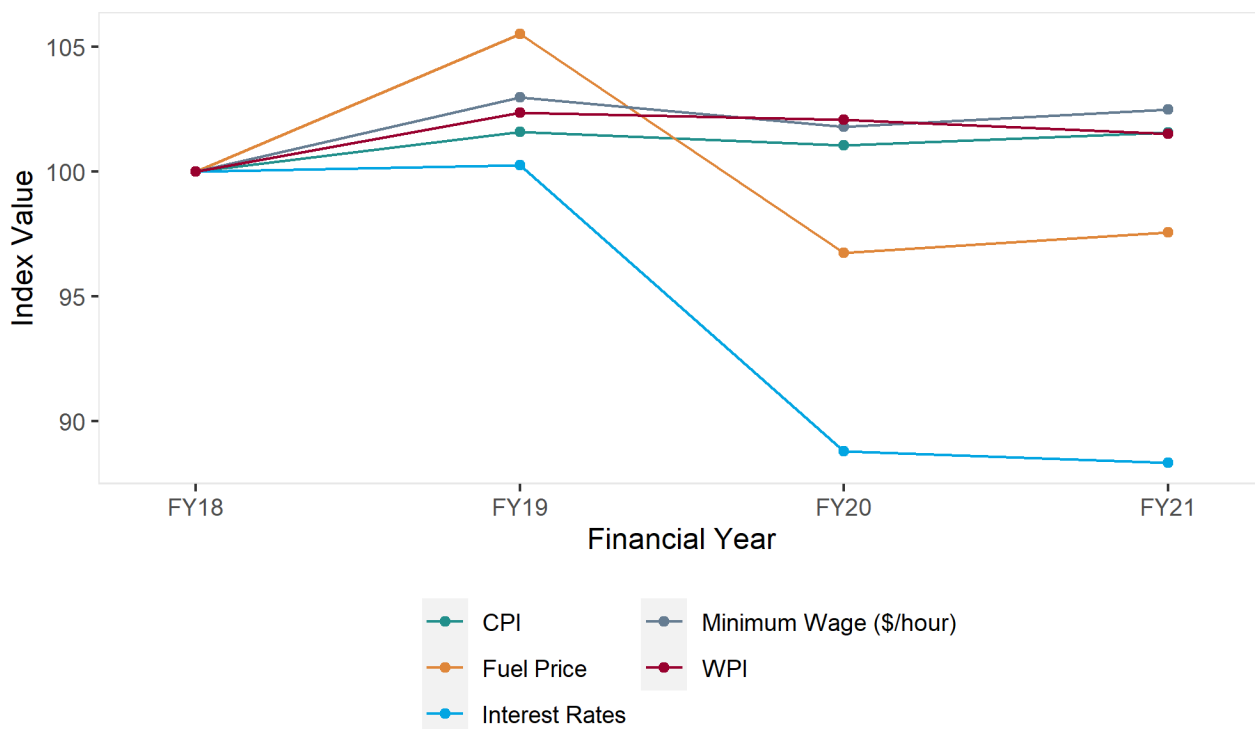
- Business level statistical matching and imputation
- Regional economic contribution analysis (using an input-output model approach)
- Established financial reporting techniques
- Data visualisation.

The 2020/21 economic indicators for the New South Wales commercial fisheries were calculated by updating the 2019/20 indicators using a range of primary and secondary data about 2020/21.

Fisheries monitoring and management data were obtained from NSW Department of Primary Industries for the 2020/21 financial year to adjust the 2019/20 indicators to reflect fishers' fishing and share trading activities in 2020/21. The imputation process involved calculating revenue using updated species prices for 2020/21, then adjusting operating costs and employment for each business based on the difference in fishing effort and revenue between 2019/20 and 2020/21. Businesses that were active in 2020/21 but not 2019/20 were not represented in the base year data so were imputed in the same way as a non-surveyed business were for the 2019/20 indicators (see BDO EconSearch 2023). Further, input prices were adjusted in line with changes in relevant cost indices. Figure 1-2 outlines the trend in each cost index for the past three years. Finally, data on the 2020/21 financial year provided by DPI were used to quantify fishing licence fees and management costs.

A description of the methods used to produce these indicators is presented in 'Economic and Social Indicators for NSW Commercial Fisheries for 2020/21' (BDO EconSearch 2023).

Figure 1-2 Input price indicator<sup>a</sup> trends, 2017/18 to 2020/21 financial years



<sup>a</sup> CPI = Consumer Price Index, Index Numbers, all groups CPI, Sydney; Minimum Wage (\$/hour) = Fair Work Ombudsman, National Minimal Wage; Fuel Price = Consumer Price Index, Index Numbers, Automotive fuel, Sydney; WPI = Quarterly Index ; Ordinary time hourly rates of pay excluding bonuses; New South Wales; Private and Public; All industries; Interest Rates = Lending rates; Small business; Variable; Overdraft.

Source: BDO EconSearch analysis

## Indicators

This report presents indicators in the following categories:

- Economic indicators
  - Business financial indicators
  - Economic contribution indicators
  - Fishery economic indicators
- Social indicators
  - Perceived compliance with fishing rules and regulations
  - Perceptions of fisheries management
  - Satisfaction with fishing
  - Global life satisfaction
  - Satisfaction with future security.

## Regions

Indicators for the Sea Urchin & Turban Shell fishery are reported at the state level only due to the small number of active fishers.

## 2. SURVEY OF FISHING BUSINESSES

Fishing businesses were invited to participate in surveys which collected various data items that are not held by NSW Department of Primary Industries but are required to calculate economic and social indicators.

Data were collected respecting the confidentiality of fishing businesses and were used by BDO EconSearch to produce the economic and social indicator reports. The data were not distributed outside of BDO EconSearch and may not be provided to NSW Department of Primary Industries without prior permission from the businesses in question.

### 2.1. Survey of Fishing Businesses, 2019/20

The survey of fishing businesses to collect information on the 2019/20 financial year was undertaken between May and July in 2021. Non-survey data were obtained from NSW Department of Primary Industries for the 2019/20 financial year.

The survey involved collecting data from fishing businesses for the 2019/20 financial year. Data were collected on species prices and markets, operating costs, processing activity, employment (including unpaid), endorsement values/leasing costs, capital value and depreciation, and social and demographic information. The survey used a questionnaire that was developed in collaboration with NSW Department of Primary Industries and with industry representatives. Businesses were asked to include only the amounts that were attributable to their NSW fishing business. If exact figures were not available (e.g. from a tax return), then they were asked to provide careful estimates.

The survey captured responses from 38.9% of fishing businesses that were active in 2019/20 (Table 2-1). A business is considered active if it fished at least one day during 2019/20.

Table 2-1 Survey sample from 2021 in the Sea Urchin & Turban Shell fishery

Fishing Region	Active Businesses	Sample Size	%
<b>Whole Fishery</b>	<b>18</b>	<b>7</b>	<b>38.9%</b>

Source: BDO EconSearch analysis

### 2.2. Update Survey of Fishing Businesses, 2020/21

The purpose of the 2020/21 survey was to provide key business level data points to update the 2019/20 indicators (which were based on a more comprehensive survey) to the 2020/21 financial year without overburdening fishers with a lengthy survey. This survey collected brief information about species prices and markets, and few social indicators. In comparison, the comprehensive 2019/20 survey also collected detailed information on working capital, itemised expenditures, employment, debt and equity, and more social indicators. It targeted those fishers who agreed in the 2019/20 survey to also participate in the 2020/21 survey and was undertaken between July and August 2022. Due to the reduced number and complexity of the required data items, the target sample size in the update survey was smaller than that in the base year survey.

The survey captured responses from 33.3% of fishing businesses that were active in 2020/21 (Table 2-2). A business is considered active if it fished at least one day during 2020/21.

Table 2-2 Survey sample from 2022 in the Sea Urchin & Turban Shell fishery

Fishing Region	Active Businesses	Sample Size	%
<b>Whole Fishery</b>	<b>24</b>	<b>8</b>	<b>33.3%</b>

Source: BDO EconSearch analysis

### 3. CATCH, VALUE, PRICES AND MARKETS

Catch, price, value and market destinations are shown in Table 3-1 for the species where the survey provided at least 5 observations (to maintain confidentiality), these prices were used to calculate indicators. The price shown for *other species* is not a specific price but an average price of all the species included within the *other species* grouping. The Sea Urchin & Turban Shell fishery produced 168t of catch and \$0.6m in GVP (at beach price).

In 2020/21, the average price was \$3.74/kg, a decrease from \$4.01/kg in 2019/20 (BDO EconSearch 2022).

Market destinations by catch include NSW (99.3%), and Interstate (0.7%). The proportion of catch exported overseas was higher in 2020/21 (6.3%) than in 2019/20 (0.0%), likely due to the relaxing of trade barriers after the impact of COVID-19 and associated border restrictions and closures (BDO EconSearch 2022).

**Table 3-1 Catch, GVP and markets for Sea Urchin & Turban Shell fishery in 2020/21**

Species	Catch	Price	Unit	GVP (\$m)	Market Destination (%)			
					NSW	Interstate	Direct overseas	Total overseas <sup>a</sup>
Longspined Sea Urchin (Purple)	132,638	\$3.07	Kg	0.4	100.0%	0.0%	0.0%	8.8%
Other species	29,754	\$6.72	Kg	0.2	97.9%	2.1%	0.0%	1.1%
<b>Fishery Total</b>	<b>162,392</b>	<b>\$3.74</b>	<b>Kg</b>	<b>0.6</b>	<b>99.3%</b>	<b>0.7%</b>	<b>0.0%</b>	<b>6.3%</b>

<sup>a</sup> This estimate is made by fishing businesses. It is their understanding of total exports by all businesses (e.g. themselves and seafood processors).

Source: BDO EconSearch analysis

## 4. FINANCIAL INDICATORS

This section presents a series of tables that describe the average financial performance of businesses in the Sea Urchin & Turban Shell fishery in 2020/21. Sample sizes outlined in these tables are from the 2019/20 survey, on which the update to 2020/21 indicators was based. The average business refers to the average activity within the Sea Urchin & Turban Shell fishery of businesses that access the fishery, which means that a 'business' as represented in the financial indicators table may actually be just the proportion of the business attributable to the Sea Urchin & Turban Shell fishery. For example, a business that is active in both the Sea Urchin & Turban Shell fishery and another fishery will have their business activity (employment, expenditure, capital values, etc.) proportionally split between the financial indicators tables of the two fisheries.

Following the financial indicators tables, the value of assets, liabilities and equity of fishing businesses that accessed the Sea Urchin & Turban Shell fishery in 2020/21 is summarised.

### 4.1. Financial Performance

Financial indicators are presented in Table 4-1 to Table 4-4 that follow using various groupings:

- **Whole fishery:** provides an understanding of the average performance across the whole fishery.
- **Profitability quartiles:** provides an understanding of the performance of the average business in each profitability quartile (defined by return on investment). This allows comparison of business characteristics at different levels of profitability.
- **Activity level quartiles:** provides an understanding of the performance of the average businesses in each activity level quartile (by days fished). This allows comparison of the business characteristics of businesses with different levels of activity.
- **Fishery specialisation:** provides an understanding of the performance of businesses that are specialised in this fishery compared to those that earn more of their revenue in other fisheries. This allows comparison of the business characteristics of businesses with different levels of fishery specialisation.

#### Fishing activity

The average business that accessed the Sea Urchin & Turban Shell fishery in 2020/21 employed 0.4 fte jobs and fished on 18 days of the year, a decrease from 23 days of fishing on average in 2019/20 (Table 4-1).

#### Revenue and costs

Average gross income was \$25,278 and average total variable costs was \$26,073, producing an average boat gross margin of -\$794. Average total fixed costs was \$13,347 which produces an average gross operating surplus of -\$6,363, a decrease from -\$4,432 in 2019/20 (Table 4-1).

#### Profitability

Average boat business profit, which accounts for depreciation and unpaid labour, was -\$18,741. Average profit at full equity, which excludes any leasing and interest costs, was -\$17,774. Dividing profit at full equity by the value of capital produces a return on investment of -16.0% (down from -15.7% in 2019/20) including the capital value of fishing gear and equipment only, or -10.5% (down from -10.1% in 2019/20) when also including the capital value of fishery shares or licences (Table 4-1).



Table 4-1 Financial performance of the average business in the Sea Urchin & Turban Shell fishery in 2020/21

Indicator	2019/20		2020/21	
	Value per active business	%	Value per active business	%
<b>Fishing Businesses</b>				
Active Businesses	18		24	
Sample Size	7		7	
<b>Fishing Activity</b>				
Days Fished	23		18	
Catch (kg)	7,025		6,766	
Prop. of Revenue Earned in this Fishery	77.3%		76.2%	
<b>Employment</b>				
Total Jobs	1.7		1.7	
FTE Jobs	0.4		0.4	
(1) Gross Income	\$28,194		\$25,278	
<b>Variable Costs</b>				
Bait/Ice	\$820	2%	\$691	2%
Fuel	\$7,339	18%	\$5,814	15%
Labour - paid	\$5,961	14%	\$6,754	17%
(2) Labour - unpaid	\$6,482	16%	\$5,412	14%
Other	\$490	1%	\$446	1%
Provisions	\$165	0%	\$127	0%
Repairs & Maintenance	\$6,405	15%	\$6,829	17%
(3) Total Variable Cost	\$27,662	67%	\$26,073	66%
<b>Fixed Costs</b>				
Insurance	\$2,697	6%	\$2,803	7%
(4) Interest	\$671	2%	\$500	1%
(5) Labour - unpaid	\$2,487	6%	\$2,367	6%
(6) Leasing of building, equipment & quota transfers	\$0		\$0	
Legal & Accounting	\$1,109	3%	\$1,039	3%
Licence fee	\$1,475	4%	\$1,173	3%
Office & Admin	\$1,173	3%	\$1,159	3%
Other	\$0	0%	\$0	0%
Other licence fees	\$1,105		\$1,037	
Slipping & Mooring	\$814	2%	\$913	2%
Telephone etc.	\$2,285	5%	\$2,236	6%
Travel	\$116	0%	\$122	0%
(7) Total Fixed Cost	\$13,933	33%	\$13,347	34%
(8) Total Boat Cash Costs (3+7)	\$41,595	100%	\$39,420	100%
<b>Profitability</b>				
Boat Gross Margin (1-3)	\$532		-\$794	
(9) Total Unpaid Labour (2+5)	\$8,969		\$7,779	
Gross Operating Surplus (1-8+9)	-\$4,432		-\$6,363	
(10) Boat Cash Income (1-8)	-\$13,401		-\$14,142	
(11) Depreciation	\$4,617		\$4,599	
(12) Boat Business Profit (10-11)	-\$18,018		-\$18,741	
(13) Profit at Full Equity (12+4+6)	-\$16,864		-\$17,774	
<b>Boat Capital</b>				
(14) Fishing Gear and Equipment	\$98,090		\$101,549	
Licence Value	\$58,889		\$58,229	
(15) Total Working Capital	\$156,979		\$159,778	
<b>Rate of Return</b>				
Rate of Return on Fishing Gear and Equipment (13/14*100)	-15.7%		-16.0%	
Rate of Return on Total Working Capital (13/15*100)	-10.1%		-10.5%	

Source: BDO EconSearch analysis

**Table 4-2 Financial performance in the Sea Urchin & Turban Shell fishery in 2020/21, average business in each profitability quartile**

Indicator	Return on Investment Quartile			
	Q1	Q2	Q3	Q4
<b>Fishing Businesses</b>				
Active Businesses	6	6	6	6
Sample Size		1	3	3
<b>Fishing Activity</b>				
Days Fished	5	9	22	37
Catch (kg)	737	3,302	9,870	13,157
Prop. of Revenue Earned in this Fishery	100.0%	92.6%	69.2%	43.2%
<b>Employment</b>				
Total Jobs	2.4	2.0	1.2	1.3
FTE Jobs	0.5	0.4	0.2	0.4
(1) Gross Income	\$2,767	\$12,023	\$38,199	\$48,123
<b>Variable Costs</b>				
Bait/Ice	\$1,003	\$638	\$377	\$746
Fuel	\$4,633	\$5,189	\$8,947	\$4,486
Labour - paid	\$1,192	\$5,293	\$15,288	\$5,243
(2) Labour - unpaid	\$21,594	\$4,138	\$2,974	\$5,378
Other	\$359	\$324	\$584	\$519
Provisions	\$151	\$104	\$114	\$138
Repairs & Maintenance	\$9,037	\$8,558	\$6,516	\$3,205
(3) Total Variable Cost	\$37,967	\$24,244	\$34,801	\$19,713
<b>Fixed Costs</b>				
Insurance	\$3,131	\$3,392	\$2,760	\$1,929
(4) Interest	\$0	\$669	\$349	\$981
(5) Labour - unpaid	\$4,926	\$2,862	\$879	\$801
(6) Leasing of building, equipment & quota transfers	\$0	\$0	\$0	\$0
Legal & Accounting	\$1,234	\$1,243	\$916	\$763
Licence fee	\$1,024	\$1,423	\$962	\$1,282
Office & Admin	\$698	\$1,065	\$1,706	\$1,168
Other	\$0	\$0	\$0	\$0
Other licence fees	\$1,188	\$973	\$830	\$1,155
Slipping & Mooring	\$1,739	\$1,221	\$541	\$150
Telephone etc.	\$3,400	\$2,996	\$1,567	\$980
Travel	\$0	\$195	\$89	\$203
(7) Total Fixed Cost	\$17,340	\$16,038	\$10,600	\$9,411
(8) Total Boat Cash Costs (3+7)	\$55,307	\$40,282	\$45,401	\$29,124
<b>Profitability</b>				
Boat Gross Margin (1-3)	-\$35,200	-\$12,221	\$3,398	\$28,410
(9) Total Unpaid Labour (2+5)	\$26,520	\$6,999	\$3,854	\$6,179
Gross Operating Surplus (1-8+9)	-\$26,020	-\$21,260	-\$3,348	\$25,178
(10) Boat Cash Income (1-8)	-\$52,540	-\$28,259	-\$7,202	\$18,998
(11) Depreciation	\$6,387	\$5,906	\$3,045	\$3,059
(12) Boat Business Profit (10-11)	-\$58,926	-\$34,165	-\$10,247	\$15,940
(13) Profit at Full Equity (12+4+6)	-\$58,607	-\$33,080	-\$9,104	\$17,259
<b>Boat Capital</b>				
(14) Fishing Gear and Equipment	\$125,893	\$118,671	\$86,029	\$75,602
Licence Value	\$44,871	\$61,461	\$57,385	\$69,200
(15) Total Working Capital	\$170,763	\$180,132	\$143,414	\$144,802
<b>Rate of Return</b>				
Rate of Return on Fishing Gear and Equipment (13/14*100)	-44.3%	-26.0%	-8.9%	21.0%
Rate of Return on Total Working Capital (13/15*100)	-33.1%	-17.6%	-5.7%	11.4%

Source: BDO EconSearch analysis

**Table 4-3 Financial performance in the Sea Urchin & Turban Shell fishery in 2020/21, average business in each days fished quartile**

Indicator	Days Fished Quartile			
	Q1	Q2	Q3	Q4
<b>Fishing Businesses</b>				
Active Businesses	7	7	5	5
Sample Size	2	1	1	3
<b>Fishing Activity</b>				
Days Fished	2	7	25	48
Catch (kg)	1,057	1,569	11,004	17,798
Prop. of Revenue Earned in this Fishery	73.6%	79.8%	81.3%	69.9%
<b>Employment</b>				
Total Jobs	1.8	1.7	1.4	1.9
FTE Jobs	0.4	0.4	0.3	0.5
(1) Gross Income	\$3,381	\$6,556	\$38,971	\$68,454
<b>Variable Costs</b>				
Bait/Ice	\$457	\$945	\$438	\$914
Fuel	\$1,415	\$5,801	\$7,070	\$10,733
Labour - paid	\$764	\$3,337	\$11,558	\$15,119
(2) Labour - unpaid	\$1,796	\$11,769	\$2,360	\$7,480
Other	\$145	\$396	\$586	\$800
Provisions	\$183	\$16	\$116	\$214
Repairs & Maintenance	\$5,718	\$7,985	\$6,546	\$7,049
(3) Total Variable Cost	\$10,478	\$30,250	\$28,675	\$42,310
<b>Fixed Costs</b>				
Insurance	\$2,346	\$2,806	\$3,095	\$3,145
(4) Interest	\$0	\$505	\$548	\$1,143
(5) Labour - unpaid	\$3,344	\$3,095	\$1,232	\$1,114
(6) Leasing of building, equipment & quota transfers	\$0	\$0	\$0	\$0
Legal & Accounting	\$859	\$1,117	\$1,155	\$1,066
Licence fee	\$994	\$1,151	\$1,136	\$1,490
Office & Admin	\$366	\$968	\$1,878	\$1,818
Other	\$0	\$0	\$0	\$0
Other licence fees	\$789	\$999	\$954	\$1,518
Slipping & Mooring	\$1,322	\$1,008	\$648	\$471
Telephone etc.	\$2,480	\$2,641	\$2,066	\$1,495
Travel	\$0	\$147	\$115	\$263
(7) Total Fixed Cost	\$12,500	\$14,439	\$12,827	\$13,525
(8) Total Boat Cash Costs (3+7)	\$22,978	\$44,688	\$41,502	\$55,835
<b>Profitability</b>				
Boat Gross Margin (1-3)	-\$7,097	-\$23,694	\$10,297	\$26,144
(9) Total Unpaid Labour (2+5)	\$5,140	\$14,865	\$3,592	\$8,594
Gross Operating Surplus (1-8+9)	-\$14,457	-\$23,268	\$1,061	\$21,213
(10) Boat Cash Income (1-8)	-\$19,597	-\$38,133	-\$2,531	\$12,619
(11) Depreciation	\$4,740	\$5,184	\$4,026	\$4,158
(12) Boat Business Profit (10-11)	-\$24,337	-\$43,317	-\$6,557	\$8,462
(13) Profit at Full Equity (12+4+6)	-\$24,180	-\$42,416	-\$5,149	\$10,213
<b>Boat Capital</b>				
(14) Fishing Gear and Equipment	\$85,013	\$113,358	\$96,638	\$113,077
Licence Value	\$50,634	\$52,081	\$72,913	\$62,786
(15) Total Working Capital	\$135,647	\$165,439	\$169,551	\$175,864
<b>Rate of Return</b>				
Rate of Return on Fishing Gear and Equipment (13/14*100)	-27.4%	-35.0%	-4.5%	8.2%
Rate of Return on Total Working Capital (13/15*100)	-17.4%	-24.5%	-2.8%	5.4%

Source: BDO EconSearch analysis

Table 4-4 Financial performance in the Sea Urchin & Turban Shell fishery in 2020/21, average business in each fishery specialisation group

Indicator	Share of Revenue earned in Fishery	
	High Revenue Share	Low Revenue Share
<b>Fishing Businesses</b>		
Active Businesses	17	7
Sample Size	2	5
<b>Fishing Activity</b>		
Days Fished	16	23
Catch (kg)	6,442	7,555
Prop. of Revenue Earned in this Fishery	100.0%	18.5%
<b>Employment</b>		
Total Jobs	2.1	0.8
FTE Jobs	0.5	0.3
(1) Gross Income	\$25,262	\$25,319
<b>Variable Costs</b>		
Bait/Ice	\$847	\$312
Fuel	\$7,573	\$1,541
Labour - paid	\$8,313	\$2,968
(2) Labour - unpaid	\$6,525	\$3,409
Other	\$576	\$132
Provisions	\$163	\$38
Repairs & Maintenance	\$8,981	\$1,603
(3) Total Variable Cost	\$32,978	\$10,002
<b>Fixed Costs</b>		
Insurance	\$3,546	\$997
(4) Interest	\$514	\$465
(5) Labour - unpaid	\$3,098	\$591
(6) Leasing of building, equipment & quota transfers	\$0	\$0
Legal & Accounting	\$1,360	\$260
Licence fee	\$1,114	\$1,314
Office & Admin	\$1,426	\$512
Other	\$0	\$0
Other licence fees	\$1,234	\$557
Slipping & Mooring	\$1,211	\$189
Telephone etc.	\$2,969	\$455
Travel	\$117	\$132
(7) Total Fixed Cost	\$16,589	\$5,473
(8) Total Boat Cash Costs (3+7)	\$49,567	\$15,475
<b>Profitability</b>		
Boat Gross Margin (1-3)	-\$7,716	\$15,316
(9) Total Unpaid Labour (2+5)	\$9,623	\$4,000
Gross Operating Surplus (1-8+9)	-\$14,683	\$13,843
(10) Boat Cash Income (1-8)	-\$24,306	\$9,843
(11) Depreciation	\$5,817	\$1,641
(12) Boat Business Profit (10-11)	-\$30,123	\$8,202
(13) Profit at Full Equity (12+4+6)	-\$28,987	\$8,757
<b>Boat Capital</b>		
(14) Fishing Gear and Equipment	\$127,342	\$38,907
Licence Value	\$54,804	\$66,548
(15) Total Working Capital	\$182,146	\$105,455
<b>Rate of Return</b>		
Rate of Return on Fishing Gear and Equipment (13/14*100)	-20.7%	21.5%
Rate of Return on Total Working Capital (13/15*100)	-14.9%	8.2%

Source: BDO EconSearch analysis

## 4.2. Assets, Liabilities and Equity

Commercial fishing businesses in New South Wales utilise valuable fishery shares, vessels or vehicles and other working capital. They may hold cash and may also hold debt to finance the business and other liabilities. The total assets held by a business less its total liabilities is the business' equity, which can be expressed in dollar terms or as a percentage of total asset value. Table 4-5 presents a simple average of the equity of all surveyed businesses that access the Sea Urchin & Turban Shell fishery. The averages are based on business asset and debt data collected in the 2019/20 survey and have been redistributed to the fisheries each survey business was active in during 2020/21. The average is of whole businesses and includes the endorsement values for all fisheries that they access, unlike the financial indicator tables above which present averages of proportions of businesses that access the fishery.

Table 4-5 Assets, liabilities and equity in the Sea Urchin & Turban Shell fishery in 2020/21

	Value
<b>Assets</b>	
Endorsement value	\$1,732,406
Working capital	\$417,633
Other assets	\$190,833
Total assets	\$2,340,873
<b>Liabilities</b>	
Total liabilities	\$45,833
<b>Equity</b>	
Total equity	\$2,295,040
Equity / Total assets	98.0%

Source: BDO EconSearch analysis

## 5. ECONOMIC CONTRIBUTION

Estimates of the economic contribution of the Sea Urchin & Turban Shell fishery to the NSW economy in 2020/21 are outlined in this section.

Economic contribution analysis is a descriptive analysis that traces the gross economic activity of the fishery as dollars of expenditure cycle through the regional and state economies. The analysis utilised the detailed industry specific data reported above in combination with other regional/state data that describe the linkages that exist within the regional economies.

### Contribution or impact?

An *economic contribution analysis* (presented in this report) can be thought of as a *footprint* or *snapshot* analysis of economic activity. It is distinctly different to an *economic impact analysis*, which can be thought of as an analysis of a *change* in economic activity (not the subject of this report). An *economic impact analysis* is an appropriate approach for evaluating a *change* where an industry is generating new revenues that would otherwise not occur, keeping revenues in the region that would otherwise be lost, or being subject to changes that result in existing revenues being lost.

### Direct and flow-on effects

The following types of activity are presented in this report as *direct* economic contribution:

- the landed beach value of production
- the sustaining capital expenditure of fishing businesses
- the margin value of local seafood processing.

Each of these activities generates flow-on effects to other sectors through purchases of inputs and the employment of labour. These effects have been estimated using input-output analysis (BDO EconSearch 2022).

### Economic contribution indicators

Economic contributions have been specified in terms of the following indicators.

- Value of output (direct only and equivalent to gross value of production or GVP)
- Employment (fte and total jobs)
- Household income
- Gross regional state product.

## 5.1. Economic Contribution to New South Wales

The estimated economic contribution of the Sea Urchin & Turban Shell fishery to New South Wales in 2020/21 is presented in Table 5-1.

Direct contribution measures fishing and downstream activities (i.e. processing and capital expenditure). Flow-on contribution measures the economic effects in other sectors of the economy (retail and wholesale trade, manufacturing, etc.) generated by fishing and processing activities, that is, the multiplier effects. Flow-on effects are disaggregated by industry with the top 10 industries shown separately in the table. Capital expenditures are assumed to be the same as depreciation (i.e. sustaining the capital stock) which may or may not be the case in a given year but is a reasonable assumption in the long-run. Economic contribution of capital expenditure should, therefore, be interpreted as a long-run average.

**Table 5-1 Economic contribution to New South Wales of the Sea Urchin & Turban Shell fishery in 2020/21**

Sector	Output (\$m)	Gross State Product (\$m)	Household Income (\$m)	Employment (fte)	Employment (total)
<b>Direct</b>					
Fishing	0.6	0.1	0.3	10	41
CAPEX	<0.1	<0.1	<0.1	<1	1
Processing	0.5	0.1	<0.1	<1	1
<b>Total Direct</b>	<b>1.1</b>	<b>0.3</b>	<b>0.4</b>	<b>11</b>	<b>42</b>
<b>Flow-on</b>					
Personal & Other Services		<0.1	<0.1	1	2
Retail Trade		<0.1	<0.1	<1	1
Professional, Scientific & Technical Services		<0.1	<0.1	<1	1
Admin Support Services		<0.1	<0.1	<1	1
Food & Beverage Services		<0.1	<0.1	<1	1
Health & Community Services		<0.1	<0.1	<1	1
Wholesale Trade		<0.1	<0.1	<1	1
Education & Training		<0.1	<0.1	<1	1
Aquaculture		<0.1	<0.1	<1	1
Insurance & Other Financial Services		<0.1	<0.1	<1	1
Other Sectors		0.5	0.2	2	2
<b>Total Flow-ons</b>		<b>1.0</b>	<b>0.6</b>	<b>8</b>	<b>8</b>
<b>Total Contribution</b>		<b>1.3</b>	<b>1.0</b>	<b>19</b>	<b>50</b>

Source: BDO EconSearch analysis

### Value of Output

The value of output at beach price (also known as GVP) generated directly in the Sea Urchin & Turban Shell fishery in 2020/21 was \$0.6m (Table 5-1).

## **Employment**

The Sea Urchin & Turban Shell fishery directly contributed an estimated 10 fte jobs in 2020/21 while associated seafood processing of catch and capital expenditure by fishing businesses supported additional employment of less than 1 fte jobs (Table 5-1).

Flow-on business activity was estimated to support a further 8 fte jobs in 2020/21 state-wide. These jobs were concentrated in the Personal & Other Services, Retail Trade, and Professional, Scientific & Technical Services sectors. The total employment contribution to New South Wales was estimated to be 19 fte jobs in 2020/21 (Table 5-1), an increase from 18 in 2019/20 (BDO EconSearch 2022).

## **Household Income**

Estimated household income of \$0.3m was earned in 2020/21 in the Sea Urchin & Turban Shell fishery (wages of employees and estimated drawings by owner/operators) while associated seafood processing of catch and capital expenditure by fishing businesses additionally generated less than \$0.1m in household income.

Flow-on business activity was estimated to support a further \$0.6m of household income in 2020/21 state-wide. The estimated total household income contribution in New South Wales was \$1.0m in 2020/21 (Table 5-1), a decrease from \$1.1m in 2019/20 (BDO EconSearch 2022).

## **Contribution to GSP**

Contribution to GSP is measured as value of output less the cost of goods and services (including imports but excluding wages) used in producing the output. Estimated GSP of \$0.1m was produced in 2020/21 by the Sea Urchin & Turban Shell fishery while associated seafood processing of catch and capital expenditure by fishing businesses generated an estimated additional \$0.1m in GSP.

Flow-on business activity was estimated to support a further \$1.0m of GSP in 2020/21 state-wide. The estimated total GSP contribution in New South Wales was \$1.3m in 2020/21 (Table 5-1), a decrease from \$1.6m in 2019/20 (BDO EconSearch 2022).



## 6. NET ECONOMIC RETURN

Net economic return is the long-run profit from a fishery after all costs have been met, including fuel, crew costs, repairs, the opportunity cost of family and owner labour, fishery management costs, depreciation and the opportunity cost of capital (excluding endorsement) (Bath et al. 2018). These unit costs or long-term costs all need to be covered if the fishing business is to remain viable in the fishery. The cost of fisheries management is included as a cash cost to fishing businesses through licence fees, though this likely underestimates the cost of fisheries management as this cost is not fully recovered from businesses. The opportunity cost of capital is equivalent to what the fisher's investment could have earned in the next most similar alternative use considering risk and skills required. What remains after the value of these inputs (labour, capital, materials and services) has been netted out is the net economic return.

Commercial fishing operations in Australia are not risk free. Returns can be impacted both positively and negatively by factors such as natural events, changes in market conditions, disease, and management regulations. Determining the opportunity cost of capital involves an assessment of the degree of financial risk involved in the activity. For a risk-free operation, an appropriate opportunity cost of capital might be the long-term real rate of return on government bonds. The greater the risks involved, the greater is the necessary return on capital to justify the investment in that particular activity. For this analysis an opportunity cost of capital of 10 per cent has been used with sensitivity analysis at 7 and 15 per cent. The lower-bound is consistent with ABARES Australian fisheries economic indicator reporting for commonwealth managed fisheries (Bath et al. 2018). Commonwealth managed fisheries are generally larger and characterised by larger businesses with less overall variation than state managed inshore fisheries. This is why the 7 per cent used by ABARES is used as a lower-bound in this analysis. The upper-bound of 15 per cent represents a reasonable estimate for what an investor might expect when buying into a commercial fishery in New South Wales, given the variability and risk involved in this type of fishing business.

The net economic return results are presented in Table 6-1. Assuming an opportunity cost of capital of 10 per cent, net economic return generated in the Sea Urchin & Turban Shell fishery was estimated to be -\$0.63m in 2020/21, a decrease from -\$0.49m in 2019/20 (BDO EconSearch 2022).

**Table 6-1 Net Economic Return of the Sea Urchin & Turban Shell fishery in 2020/21**

	Value (\$m)
Gross Value of Production	0.61
Less Labour Costs	0.29
Less Materials & Services	0.59
Less Depreciation	0.11
Less Opportunity Cost of Capital (10%)	0.24
<b>Net Economic Return</b>	<b>-0.63</b>

Source: BDO EconSearch analysis

The sensitivity analysis in Table 6-2 shows that, with the varying assumptions about opportunity cost of capital, net economic return was likely in the range of -\$0.75m to -\$0.55m.

**Table 6-2 Sensitivity of Net Economic Return**

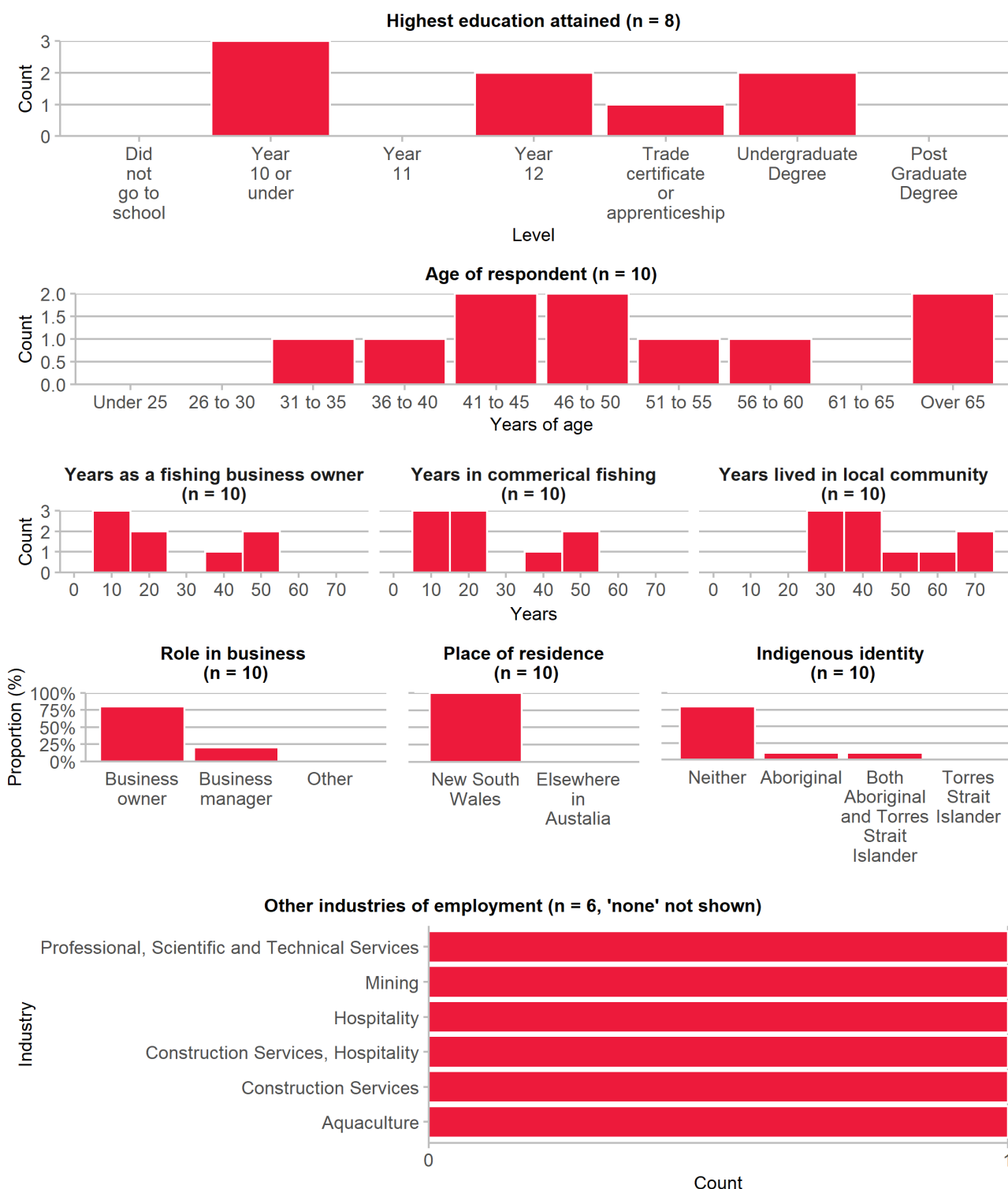
Opportunity Cost of Capital (%)	7%	10%	15%
Less Opportunity Cost of Capital (\$m)	0.17	0.24	0.37
<b>Net Economic Return (\$m)</b>	<b>-0.55</b>	<b>-0.63</b>	<b>-0.75</b>

Source: BDO EconSearch analysis

## 7. DEMOGRAPHICS

Figure 7-1 present a demographic profile of fishers who accessed the Sea Urchin & Turban Shell fishery in 2019/20. These indicators are calculated from unweighted 2019/20 survey data and have not been expanded to the fishery level. An updated demographic profile of fishers was not captured in the 2020/21 update.

Figure 7-1 Demographic profile of the Sea Urchin & Turban Shell fishery in 2019/20



Source: 2021 business survey

## 8. SOCIAL INDICATORS

Fishers may derive non-financial benefits or costs from the Sea Urchin & Turban Shell fishery and may contribute to the community in different ways. A comprehensive set of social indicators, including community contribution and personal wellbeing, was captured in the 2019/20 survey and can be found in the indicator reports from that year (BDO EconSearch 2022).

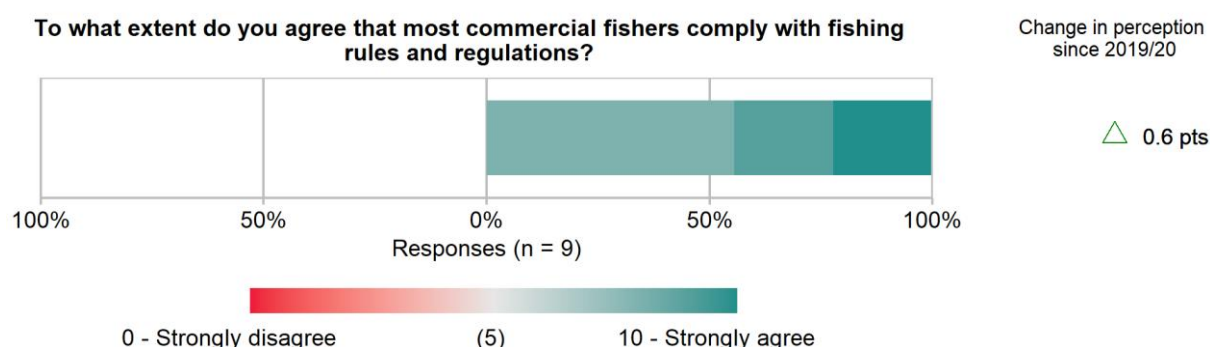
The 2020/21 survey collected updated observations for a selected subset of social indicators. The indicators were selected due to their importance as a standalone indicator and the utility of tracking annual changes. Questions were asked on a point scale of 0 to 10, the annual change is then presented as the change from the average point of the previous year to the average point of the current year. The results for each fishery are calculated from the unweighted sub-sample of fishers who accessed each fishery during 2020/21. This section presents a series of social indicators including:

- Perceived compliance with fishing rules and regulations
- Perceptions of fisheries management
- Satisfaction with fishing
- Global life satisfaction
- Satisfaction with future security.

### 8.1. Perceived Compliance with Fishing Rules and Regulations

Figure 8-1 presents fishers' perceptions of fisher compliance with fishing rules and regulations. There was unanimous agreement that most commercial fishers comply with fishing rules and regulations. Since 2019/20, this indicator has increased by 0.6 points. This indicates that fishers feel that the fishery as a whole operates responsibly, which suggests a positive outlook for the sustainability of the fishery.

Figure 8-1 Perceptions of fisher compliance in the Sea Urchin & Turban Shell fishery, 2020/21<sup>a</sup>



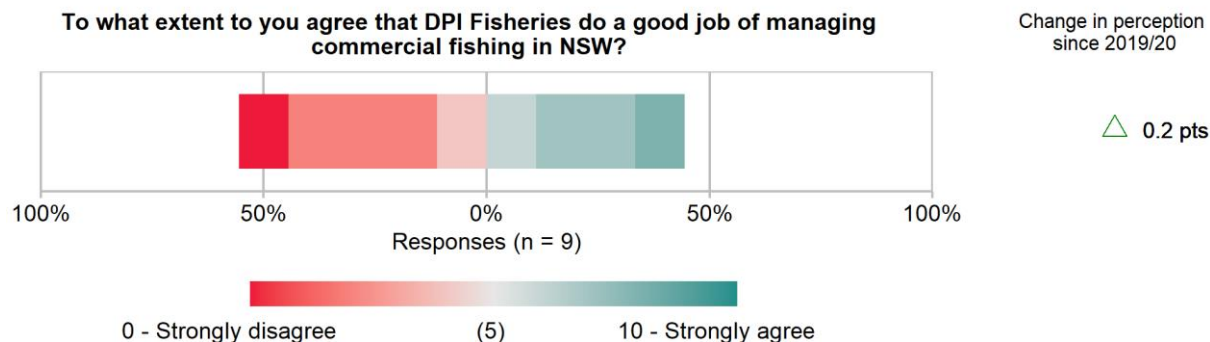
<sup>a</sup> The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

## 8.2. Perceptions of Fisheries Management

Figure 8-2 presents the perceptions of Sea Urchin & Turban Shell fishers in 2020/21 on whether DPI does a good job of managing commercial fishing in NSW. Just over half of fishers at least somewhat disagreed that DPI does a good job. However, since 2019/20 this indicator has increased overall by 0.2 points, meaning that fishers' perceptions of DPI's management have improved marginally.

Figure 8-2 Perception of fishery management in the Sea Urchin & Turban Shell fishery, 2020/21<sup>a</sup>



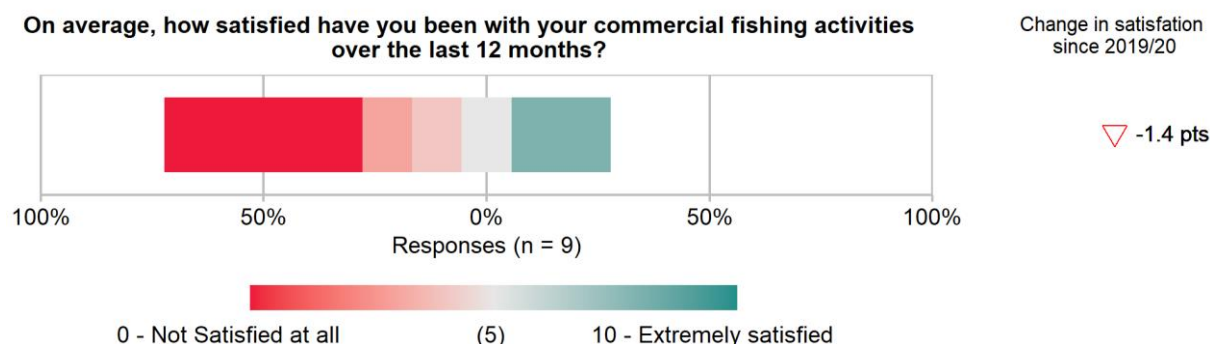
<sup>a</sup> The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

## 8.3. Satisfaction with Fishing

Figure 8-3 presents the satisfaction levels amongst Sea Urchin & Turban Shell fishers in 2020/21 regarding their commercial fishing activities over the last 12 months. A higher satisfaction with fishers' recent fishing activities indicates a level of confidence in the future of the fishing industry. Around 25 per cent of fishers indicated that they were satisfied, or completely satisfied, with their commercial fishing activities over the last 12 months, though more indicated that they were at least somewhat dissatisfied. Since 2019/20 average satisfaction has declined by 1.4 points.

Figure 8-3 Fishing satisfaction in the Sea Urchin & Turban Shell fishery, 2020/21<sup>a</sup>



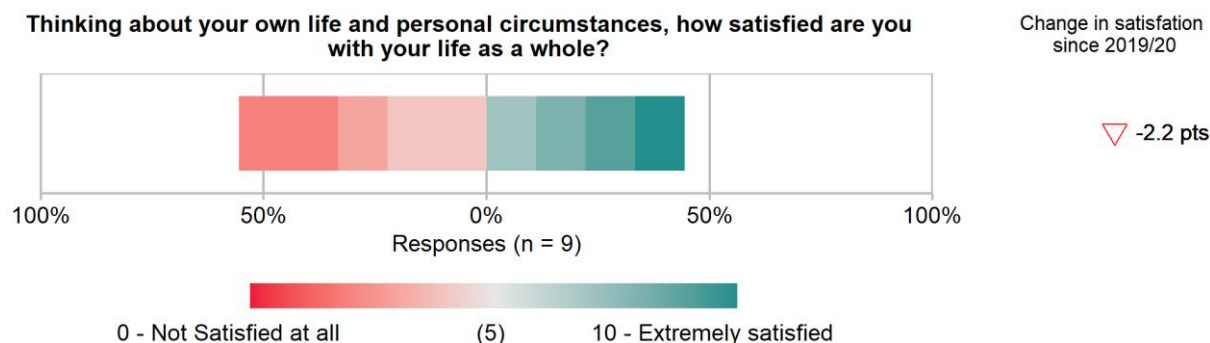
<sup>a</sup> The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

## 8.4. Global Life Satisfaction

Figure 8-4 shows the whole of life satisfaction levels of fishers in the Sea Urchin & Turban Shell fishery in 2020/21 as well as the change in average satisfaction since 2019/20. Higher life satisfaction levels amongst fishers are associated with general economic prosperity and indicate fair market access and stability. Just under half of Sea Urchin & Turban Shell fishers are more satisfied than not with their life as a whole. However, since 2019/20 this indicator declined overall by 2.2 points.

Figure 8-4 Life satisfaction in the Sea Urchin & Turban Shell fishery, 2020/21<sup>a</sup>



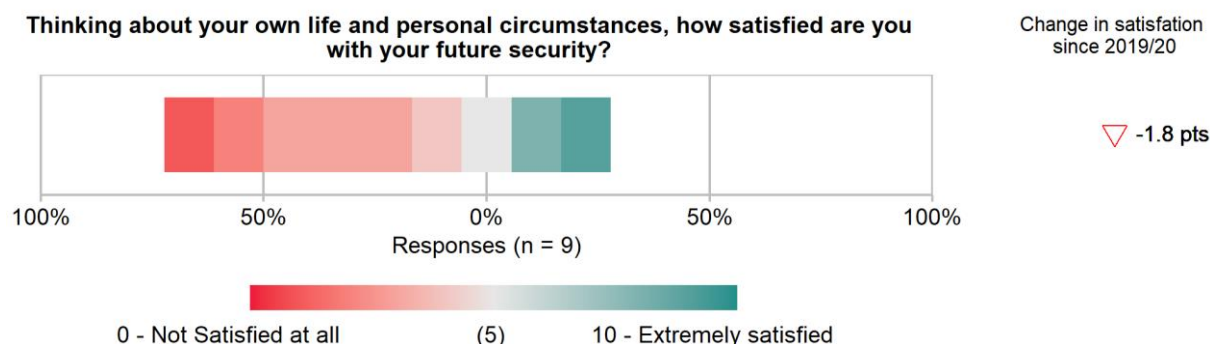
<sup>a</sup> The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

## 8.5. Satisfaction with Future Security

Figure 8-5 presents the satisfaction levels of Sea Urchin & Turban Shell fishers in 2020/21 regarding future security and the change in this average satisfaction level since 2019/20. A higher satisfaction with one's future security indicates a state of comfort and positive outlook on future prospects. Around 25 per cent of Sea Urchin & Turban Shell fishers are satisfied with their future security, though more indicated that they were at least somewhat dissatisfied. Since 2019/20 this indicator has declined overall by 1.8 points.

Figure 8-5 Satisfaction with future security in the Sea Urchin & Turban Shell fishery, 2020/21<sup>a</sup>



<sup>a</sup> The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

## REFERENCES

Bath, A. Mobsby, D. and Koduah, A. 2018, *Australian fisheries economic indicators report 2017: financial and economic performance of the Southern and Eastern Scalefish and Shark Fishery*, ABARES, Canberra, April.

BDO EconSearch 2022, *Economic and Social Indicators for NSW Sea Urchin & Turban Shell Fishery in 2019/20*, report prepared for the Department for Primary Industries, Adelaide, April.

BDO EconSearch 2023, *Economic and Social Indicators for NSW Commercial Fisheries in 2020/21*, report prepared for the Department for Primary Industries, Adelaide, December.

### Disclaimer

The assignment is a consulting engagement as outlined in the 'Framework for Assurance Engagements', issued by the Auditing and Assurances Standards Board, Section 17. Consulting engagements employ an assurance practitioner's technical skills, education, observations, experiences and knowledge of the consulting process. The consulting process is an analytical process that typically involves some combination of activities relating to: objective-setting, fact-finding, definition of problems or opportunities, evaluation of alternatives, development of recommendations including actions, communication of results, and sometimes implementation and follow-up.

The nature and scope of work has been determined by agreement between BDO and the Client. This consulting engagement does not meet the definition of an assurance engagement as defined in the 'Framework for Assurance Engagements', issued by the Auditing and Assurances Standards Board, Section 10.

Except as otherwise noted in this report, we have not performed any testing on the information provided to confirm its completeness and accuracy. Accordingly, we do not express such an audit opinion and readers of the report should draw their own conclusions from the results of the review, based on the scope, agreed-upon procedures carried out and findings.



1300 138 991  
[www.bdo.com.au](http://www.bdo.com.au)

**NEW SOUTH WALES**  
**NORTHERN TERRITORY**  
**QUEENSLAND**  
**SOUTH AUSTRALIA**  
**TASMANIA**  
**VICTORIA**  
**WESTERN AUSTRALIA**

**AUDIT • TAX • ADVISORY**



BDO Services Pty Ltd ABN 45 134 242 434 is a member of a national association of independent entities which are all members of BDO Australia Ltd ABN 77 050 110 275, an Australian company limited by guarantee. BDO Services Pty Ltd and BDO Australia Ltd are members of BDO International Ltd, a UK company limited by guarantee, and form part of the international BDO network of independent member firms. Liability limited by a scheme approved under Professional Standards Legislation.