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VICTORIAN FISHERIES AND AQUACULTURE INDUSTRY 2017/18: ECONOMIC CONTRIBUTIONS SUMMARY

Presented by the Fisheries Research and Development
Corporation and the Institute for Marine and Antarctic Studies.
Economic estimates provided by BDO EconSearch.



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Victorian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Summary
FRDC project 2017-210
2019

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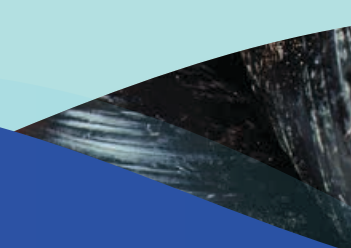
ACKNOWLEDGMENTS

BDO EconSearch and IMAS have relied heavily on the cooperation of data custodians at the Victorian Fisheries Authority.

DESIGN AND IMAGE CREDITS

Design: Stephanie Morison Design.

Cover: Dorothy Chiron. Inside cover: Mr Mussels.



PREFACE

This report presents a summary of the economic contribution of Victoria's fisheries and aquaculture industries to the Victorian community.

The FRDC on behalf of the Australian Government funded the *National Fisheries and Aquaculture Industry Contributions Study (FRDC project 2017-210)* to produce evidence of industry's contributions. The project was undertaken by the Institute for Marine and Antarctic Studies, University of Tasmania. As part of this project, BDO EconSearch was commissioned to provide an estimate of the economic contribution of Australia's fisheries and aquaculture industries in each state and territory to the Australian community, and to the relevant state or territory community, that is aimed at helping industry tell the story of its contribution.

This summary presents the results of this study for Victoria.

Estimates are based on the best available data and most appropriate methods given data availability. Full results are provided in the *Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report* and demonstrate the nationally consistent approach.

Project Steering Committee, National Fisheries and Aquaculture Industry Contributions Study (FRDC project 2017-210)

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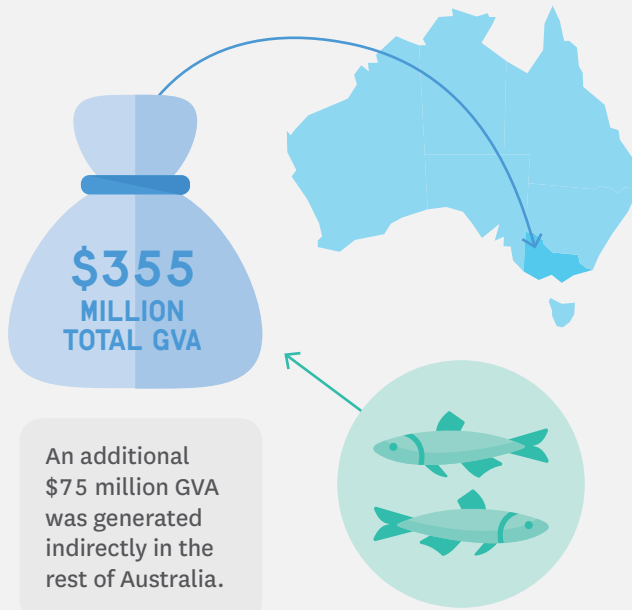
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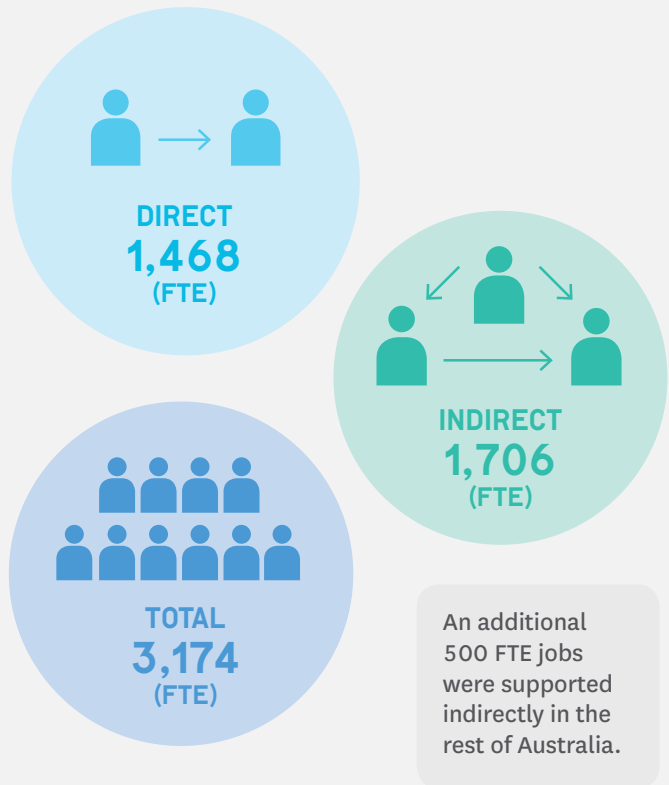
CONTRIBUTING TO VICTORIA'S ECONOMIC PROSPERITY

ECONOMY

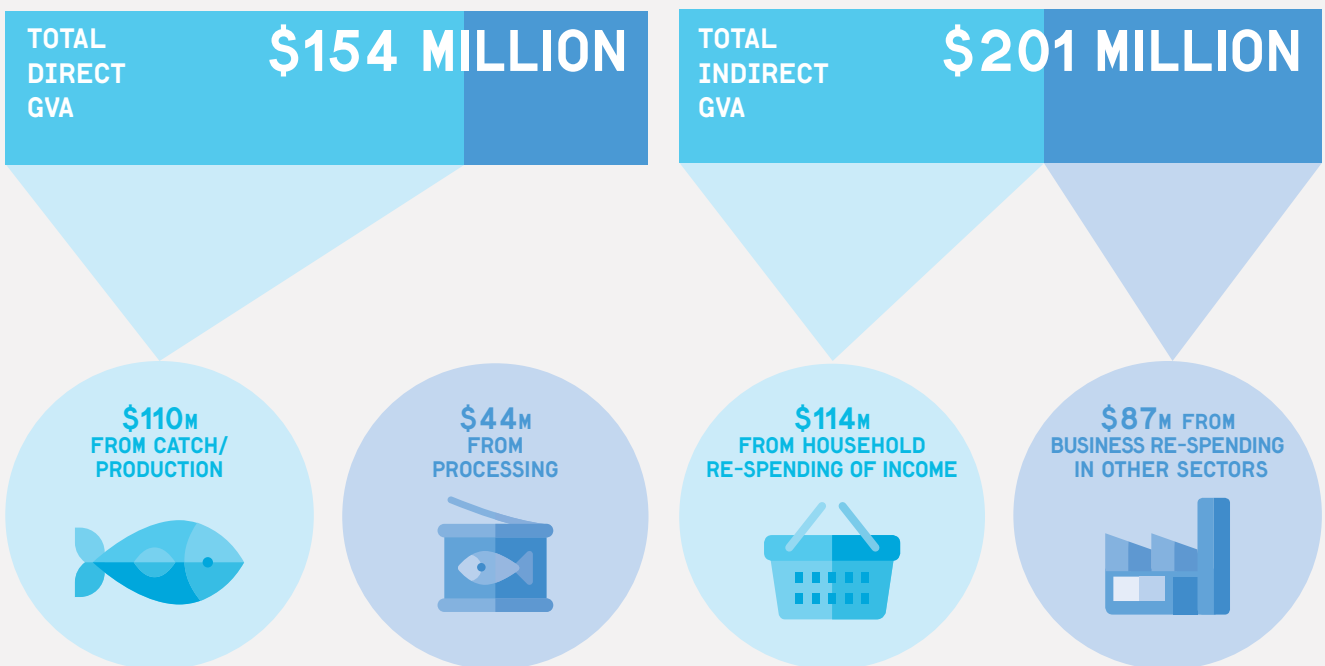
In 2017/18, VIC's fishing, aquaculture and associated processing industries contributed \$355 million dollars (total GVA) to the VIC economy.



EMPLOYMENT



ADDING VALUE



Note, totals may not sum due to rounding. Some sub-sectors have not been included in the estimates due to data not being available. See Table 3 for details.

ECONOMIC CONTRIBUTIONS

GROSS VALUE ADDED

In 2017/18, total fishery and aquaculture GVA in VIC was **\$355 million**

\$110 million generated by fishing and aquaculture

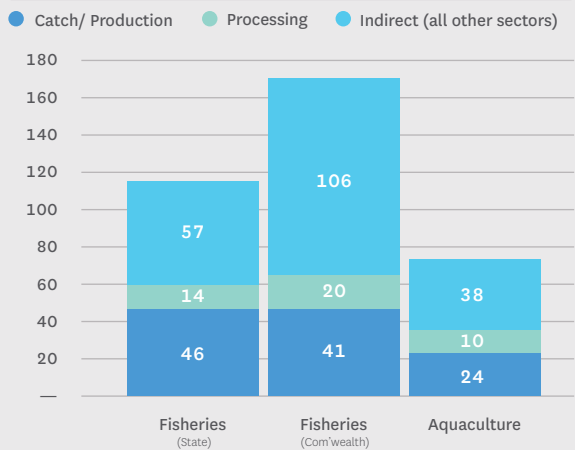
\$44 million generated by associated seafood processing activities

\$201 million generated by flow-on business activity in other sectors of the economy

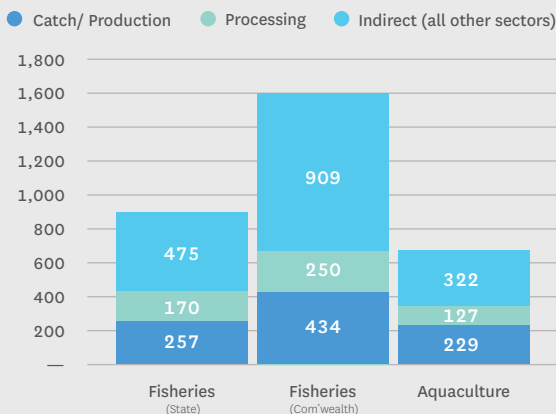
An additional **\$75 million** generated by VIC fishing, aquaculture and associated processing in other states and territories of Australia

Gross Value Added (GVA) represents the value of all goods and services produced in an industry, minus the cost of all inputs and raw materials used to produce that good or service. It provides a measure of the net contribution of an activity to the State/Territory economies, excluding net taxes.

GROSS VALUE ADDED 2017/18 (\$ MILLIONS)



EMPLOYMENT 2017/18 (FTE JOBS)



EMPLOYMENT

In 2017/18, total employment contribution to VIC was **3,174 full-time equivalent (FTE) jobs**.

920 FTE jobs contributed by fisheries and aquaculture

548 FTE jobs contributed by associated seafood processing

1,706 FTE jobs contributed by flow-on business activity in other sectors

An additional **500 FTE jobs** generated by VIC fishing, aquaculture and associated processing indirectly in other states and territories of Australia

HOUSEHOLD INCOME

In 2017/18, total household income contribution in VIC was **\$198 million**

\$52 million earned as income in fishing and aquaculture

\$21 million earned in associated seafood processing

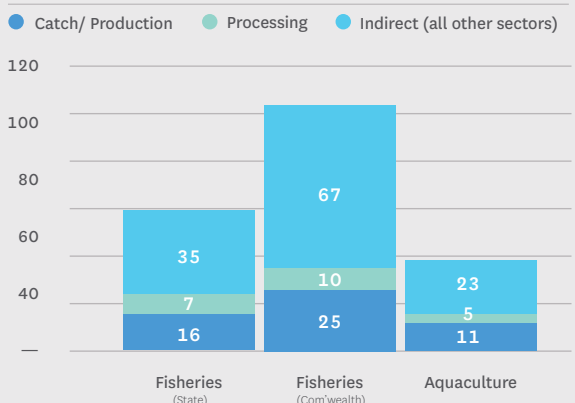
\$125 million earned in other businesses in VIC as a result of fishing, aquaculture and associated processing activities

An additional **\$42 million** generated by VIC fishing, aquaculture and associated processing indirectly in other states and territories of Australia

Household income is a measure of wages and salaries paid in cash and in kind, drawings by owner operators and other payments to labour. It includes overtime payments, employer's superannuation contributions and income tax, but excludes payroll tax.

Note, totals may not sum due to rounding.

HOUSEHOLD INCOME 2017/18 (\$ MILLIONS)



ECONOMIC ACTIVITY

GROSS VALUE OF PRODUCTION

In 2017/18, GVP of VIC fisheries, aquaculture and associated seafood processing was **\$332 million**

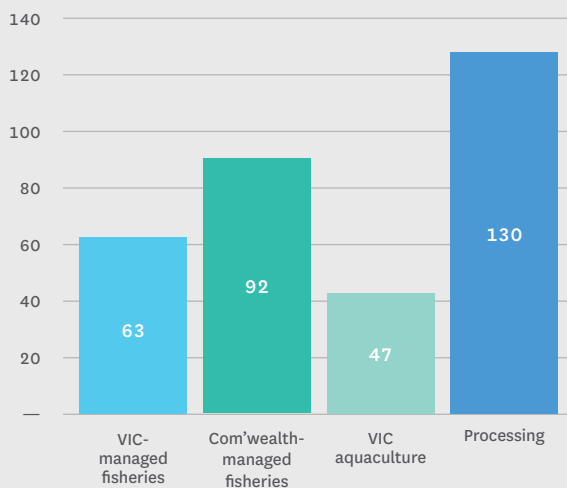
19% from VIC-managed fisheries catch

28% from Commonwealth-managed fisheries catch landed in VIC

14% from VIC aquaculture production

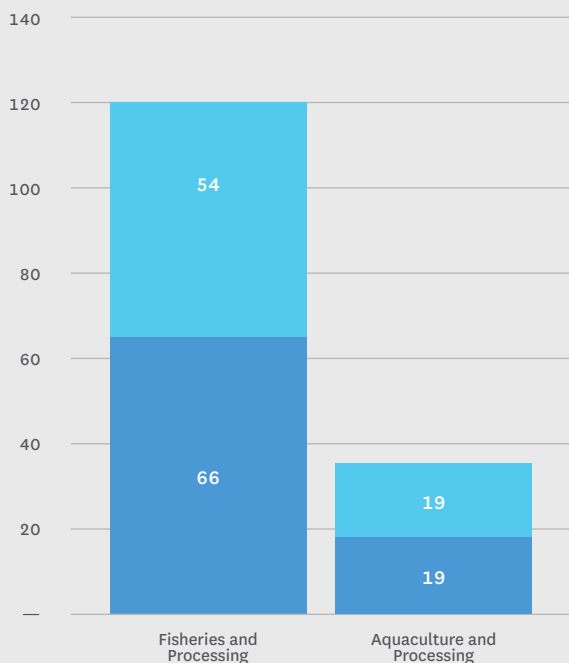
39% from associated seafood processing

GVP OF CATCH/PRODUCTION AND PROCESSING (\$ MILLIONS)



EXPENDITURE (\$ MILLIONS)

● Local ● Imported



EXPENDITURE

In 2017/18, total (non-wage) expenditure by VIC fishing, aquaculture and processing businesses was **\$156 million**

55% of total initial expenditure by fisheries and associated seafood processing was local

50% of total initial expenditure by aquaculture and associated seafood processing was local

Major sectors receiving payments from VIC fisheries, aquaculture and associated processing were:



Machinery and Equipment



Road Transport



Food Supply (Bait and Fish Food)



Professional Scientific and Technical Services



Wholesale Trade

Local expenditure excludes: wages, imports (i.e. diesel), indirect taxes (i.e. fuel excise), intra-industry purchases (i.e. fish for bait or processing) and items that represent a return to capital (i.e. quota leasing, insurance and interest). A margin was included for some of these items. Defining expenditure this way avoids overstating flow-on economic contributions.

TABLE 1. ECONOMIC CONTRIBUTION OF VIC COMMERCIAL FISHING AND AQUACULTURE TO VIC, 2017/18

| | GROSS VALUE ADDED (\$M) | EMPLOYMENT (FTE JOBS) | HOUSEHOLD INCOME (\$M) | GVP (\$M) |
|---|-------------------------|-----------------------|------------------------|------------|
| FISHING (VIC MANAGED) | | | | |
| DIRECT | | | | |
| Fishing | 46 | 257 | 16 | 63 |
| Processing | 14 | 170 | 7 | 40 |
| INDIRECT (ALL OTHER SECTORS)^A | | | | |
| Production induced | 24 | 212 | 16 | — |
| Consumption induced | 33 | 263 | 19 | — |
| Total indirect | 57 | 475 | 35 | — |
| TOTAL^B | 116 | 903 | 58 | 103 |
| FISHING (COMMONWEALTH MANAGED) | | | | |
| DIRECT | | | | |
| Fishing | 41 | 434 | 25 | 92 |
| Processing | 20 | 250 | 10 | 59 |
| INDIRECT (ALL OTHER SECTORS)^A | | | | |
| Production induced | 47 | 443 | 33 | — |
| Consumption induced | 59 | 466 | 34 | — |
| Total indirect | 106 | 909 | 67 | — |
| TOTAL^B | 166 | 1,593 | 102 | 152 |
| AQUACULTURE | | | | |
| DIRECT | | | | |
| Production | 24 | 229 | 11 | 47 |
| Processing | 10 | 127 | 5 | 30 |
| INDIRECT (ALL OTHER SECTORS)^A | | | | |
| Production induced | 16 | 144 | 10 | — |
| Consumption induced | 22 | 177 | 13 | — |
| Total indirect | 38 | 322 | 23 | — |
| TOTAL^B | 72 | 678 | 39 | 77 |
| FISHING AND AQUACULTURE TOTAL | | | | |
| DIRECT | | | | |
| Catch and Production | 110 | 920 | 52 | 202 |
| Processing | 44 | 548 | 21 | 130 |
| INDIRECT (ALL OTHER SECTORS)^A | | | | |
| Production induced | 87 | 799 | 59 | — |
| Consumption induced | 114 | 907 | 67 | — |
| Total indirect | 201 | 1,706 | 125 | — |
| TOTAL^B | 355 | 3,174 | 198 | 332 |

A Indirect GVP effects are excluded to avoid double counting.
 B Totals may not sum due to rounding.

Source: VFA, BDO EconSearch (2019c,d,g,i,j,l), Bath et al. (2018), George et al. (2012) and BDO EconSearch analysis.

TECHNICAL SUMMARY

This is a summary of the economic contributions of Victoria's fisheries, aquaculture and associated processing industries to the Victorian economy. The full national report of economic estimates is the *Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report*.

SCOPE

The estimates reported includes economic contributions of: commercial fishing activity; aquaculture activity; associated processing activity.

These estimates are for economic contributions of these activities in Victoria to the Victorian economy.

Commercial activities by Indigenous fishing and aquaculture businesses are included in commercial fishing and aquaculture. Commercial charter fishing activity is excluded. Fishery and aquaculture sector management activity (other than where these costs are recovered through licence fees) is excluded. Seafood processing of locally produced seafood is included where it occurs within Victoria. Processing of imported seafood is excluded.

The economic activity of sectors that supply goods and services to the commercial fishing and aquaculture industry are included in the analysis as the flow-on effects from the expenditures by the commercial fishing and aquaculture industry. This includes fishing support services and aquaculture support services. Contributions of Victorian fisheries and aquaculture to the rest of Australia are also reported.

DATA

Best available data for 2017/18 was used to produce estimates of GVP, and of direct employment, GVA, GSP/GDP and household income. Data was collected from primary sources (databases) and published sources, where available, for the individual fisheries/aquaculture sectors. This data included: wild catch/farm production, product prices, cost of production, licence fees, employment. Further information on data sources and validation is provided in the [Australian Fisheries and Aquaculture Industry Economic Contributions – Data Framework](#).

Where cost data was not available for a particular sub-sector, it was matched with an equivalent sub-sector for which data was available and cost data was then imputed based on available activity data (including: production, GVP, total days fished, average vessel length, active vessels).

Fisheries or aquaculture sub-sectors excluded from the analysis due to lack of data are listed in Table 4.

MODEL APPROACH

The flow-on effects of State and Territory fisheries, Commonwealth fisheries and aquaculture sectors for each State or Territory were estimated using multi-region input-output (MRIO) analysis. An extended input-output model known as the RISE model (Regional Industry Structure and Employment) was used. The model includes one region for each state and territory in Australia and captures the interstate trade effects between them.

LIMITATIONS

The main limitations are due to data gaps and issues with data quality for some sectors. These were identified in the process of building the national data framework which supports the estimation of contributions.

Limited data was available to estimate the contributions of the processing sector, and the estimates of the processing sector should be regarded as preliminary. Similarly, the estimates present an incomplete profile of economic contributions made along the seafood supply chain, as secondary processing and retail sectors are not included due to lack of data. Addressing this by collecting data on these sectors presents an opportunity to produce more comprehensive estimates in future.

COMPARISON

Comparisons of these estimates can also be made with other productive industries (for example, beef or sheep). These will be less reliable due to differences in the number of sectors included (this study included only the catch/production and processing sectors), data availability and quality, and modelling across various studies.

The use of these estimates to predict the impact of changes in the level of activity of the fisheries and aquaculture industries is not advised. While results can be used to highlight the possible size and nature of impacts, further analysis would be required to estimate the actual impact on the economic measures of such changes.

Comparisons of the economic contributions of commercial fisheries and recreational fisheries (made as fishing-related expenditures generate direct and indirect economic impacts) need to be made very cautiously. The two activities are fundamentally different and require different input-output modelling approaches, and comparison can only be made where estimates are comprehensive.

For commercial fisheries this requires that estimates include backward and forward linked sectors (for example, boat building sectors, as well as seafood retail sectors). For recreational fisheries this requires that only expenditures that are directly attributable to fishing are included in the estimate.

The use of estimates of economic contributions to predict the impact on a state or territory economy of changes in resource allocation between commercial and recreational fisheries can complement economic benefit or efficiency analysis. However, it will require further knowledge to determine how inputs would be redeployed in the economy by other sectors were commercial fishing no longer occurring, and how recreational fishers would spend their discretionary income on substitutable activities were they not able to recreationally fish.

This project also supports the ability for individual industries and jurisdictions to monitor trends in the size of contributions over time.

APPENDIX 1 BACKGROUND DATA

TABLE 2: CATCH, PRODUCTION AND GVP OF THE TOP FIVE CONTRIBUTORS (BY GVP) TO VIC COMMERCIAL FISHING AND AQUACULTURE IN 2017/18

| RANK | DESCRIPTION | CATCH/ PRODUCTION (T) | GVP (\$M) | VALUE PER UNIT (\$/KG) |
|---|--|-----------------------------|--------------|------------------------------|
| FISHERIES (VIC MANAGED) | | | | |
| 1 | Abalone | 756 | 27 | 35.62 |
| 2 | Southern Rock Lobster | 314 | 25 | 81.10 |
| 3 | Offshore | 1,788 | 4 | 2.15 |
| 4 | Corner inlet | 321 | 2 | 7.42 |
| 5 | Port Phillip Bay | 265 | 2 | 6.58 |
| | Other fisheries | 381 | 2 | 6.22 |
| | Total wild caught | 3,825 | 63 | — |
| FISHERIES (COMMONWEALTH MANAGED) | | | | |
| 1 | Small Pelagic ^A | n.p. | n.p. | n.p. |
| 2 | Southern and Eastern Scalefish and Shark (Commonwealth Trawl Sector) | 6,592 | 28 | 4.31 |
| 3 | Southern and Eastern Scalefish and Shark (Gillnet Hook and Trap Sector) | 2,407 | 15 | 6.33 |
| 4 | Bass Strait Central Zone Scallop | 1,552 | 3 | 2.04 |
| 5 | Southern Squid Jig | 176 | 0 | 2.75 |
| | Total wild caught | 15,240 | 92 | — |
| AQUACULTURE | | | | |
| 1 | Abalone | 525 | 25 | 48.06 |
| 2 | Salmonids | 1,179 | 14 | 11.65 |
| 3 | Blue Mussel & Other Molluscs | 1,346 | 5 | 3.85 |
| 4 | Warm Water Finfish | 294 | 3 | 9.81 |
| | Total Production | 3,344 | 47 | — |

A Small Pelagic GVP and catch are confidential but have been estimated to the accuracy required for the purpose of this study. This estimate should not be used for any other purpose so has been marked not published (n.p.).
Source: VFA, ABARES and BDO EconSearch analysis.

TABLE 3: VIC OVERSEAS SEAFOOD EXPORTS, TOP CONTRIBUTORS BY EXPORT VALUE, 2017/18

| RANK | SEAFOOD CATEGORY ^A | EXPORT QUANTITY | | EXPORT VALUE ^B | | AVERAGE VALUE (\$/KG) |
|------|---------------------------------|-----------------|------------|---------------------------|------------|-----------------------|
| | | (TONNES) | (%) | (\$M) | (%) | |
| 1 | Rock Lobster | 1,589 | 40 | 159.1 | 67 | 100.1 |
| 2 | Abalone | 748 | 19 | 58.7 | 25 | 78.5 |
| 3 | Sea Cucumbers | 148 | 4 | 7.9 | 3 | 53.4 |
| 4 | Atlantic & Pacific Bluefin Tuna | 81 | 2 | 3.1 | 1 | 38.9 |
| 5 | Preserved Fish | 369 | 9 | 2.6 | 1 | 7.1 |
| 6 | Atlantic & Pacific Salmon | 625 | 16 | 1.3 | 1 | 2.1 |
| 7 | Other frozen fish | 191 | 5 | 0.8 | 0 | 4.0 |
| 8 | Crabs | 5 | 0 | 0.5 | 0 | 98.7 |
| 9 | Trout | 6 | 0 | 0.5 | 0 | 71.2 |
| 10 | Other molluscs | 5 | 0 | 0.4 | 0 | 78.8 |
| | Other ^C | 244 | 6 | 2.4 | 1 | — |
| | Total^D | 4,012 | 100 | 237.3 | 100 | 59.1 |

A Ranked by export value. Seafood categories are defined in Appendix 3, Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report (BDO 2019). The analysis of exports was based on a customised report from the ABS for *International Merchandise Trade, 2017-18*. Exports (quantity and FOB value) were reported by species/category for each State of origin. The State of origin is the State/Territory in which the final stage of production or manufacture occurs and may not be the State/Territory where the fish was caught/produced.

B Export values are in terms of Free on Board (FOB) values. FOB values exclude the cost of freight and merchandise insurance involved in shipping the goods beyond the place of export up to the customs frontier of the importing country.

C "Other" includes Ornamental fish, of which export quantity is measured by number of specimens. The reported export quantity and export price figures exclude Ornamental fish due to differences in units of measurement.

D Totals may not sum due to rounding.

Source: ABS (2019) and BDO EconSearch analysis.

TABLE 4: VIC FISHERIES AND AQUACULTURE SUB-SECTORS EXCLUDED FROM THE ANALYSIS

| FISHERY | REASON FOR EXCLUSION |
|--|---|
| VIC Ocean Scallop, VIC Port Phillip Bay Dive Scallop, Gippsland Lakes Mussel Dive, Port Phillip Bay Mussel Bait, Snowy River Bait, Sydenham Inlet Bait | No catch/effort data published or means to estimate it. |
| AQUACULTURE SUB-SECTOR | REASON FOR EXCLUSION |
| VIC Ornamental Fish | No published GVP data or means to estimate it. |
| VIC Freshwater Eels, VIC Yabby | Negligible production. |
| VIC Other Aquaculture | No published production data or means to estimate it. |

Source: Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report (BDO 2019).

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The background of the page is a solid dark blue. In the lower half, there are several overlapping, wavy, organic shapes in lighter shades of blue and cyan, creating a layered, wave-like effect. The text is positioned in the upper left quadrant, rendered in a clean, white, sans-serif font.