



**AUSTRALIAN FISHERIES AND
AQUACULTURE INDUSTRY 2017/18:
ECONOMIC CONTRIBUTIONS DATA
SUMMARY AND FRAMEWORK**

**A Report to the Institute for Marine and
Antarctic Studies**

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ABBREVIATIONS

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
AFMA	Australian Fisheries Management Authority
AFMF	Australian Fisheries Management Forum
COM	Commonwealth
DPIPWE	(Tasmanian) Department of Primary Industries, Parks, Water and Environment
FRDC	Fisheries Research and Development Corporation
GDP	gross domestic product
GSP	gross state product
GVA	gross value added
GVP	gross value of production
HDR	Human Dimensions Research
IMAS	Institute for Marine and Antarctic Studies
NSCP	national seafood contributions project
NSW	New South Wales
NSWDPI	New South Wales Department of Primary Industries
NT	Northern Territory
NTDPIR	Northern Territory Department of Primary Industries and Resources
PIRSA	Primary Industries and Regions South Australia
QDAF	Queensland Department of Agriculture and Fisheries
QLD	Queensland
SA	South Australia
SARDI	South Australian Research and Development Institute
SIA	Seafood Industry Australia
TAS	Tasmania
VFA	Victorian Fisheries Authority
VIC	Victoria
WA	Western Australia
WAPIRD	Western Australia Primary Industries and Regional Development

1. PURPOSE AND SCOPE

This report summarises the requisite data available for economic contribution analyses of fisheries and aquaculture activity by jurisdiction for the 2017/18 financial year. It serves as a supplement to the Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report (BDO Econsearch 2019). It also provides a data framework to support replication and improvement of the 2017/18 economic evidence study (BDO EconSearch 2019) in the future, other economic contribution studies at the regional level or by individual fishery/aquaculture industry, and economic impact assessments. For each jurisdiction, this report includes:

1. An overview of data availability and sources for data required for direct economic contribution estimation as of the time of the 2017/18 economic estimates study.
2. Assessment of jurisdictional-level data gaps. A data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also identified as having a quality concern ('Quality').
3. Data matching schedules used in producing the 2017/18 estimates for fisheries and aquaculture sectors. Where survey-based financial data of sufficient quality were unavailable for fisheries/sectors, cost of fishing/production data were imputed. The method for imputing cost data involved "matching" fisheries/sectors lacking adequate cost data with a fishery (or aquaculture sector) of similar characteristics (e.g. fishing/production methods and target species) for which detailed costs were known¹. Details of the data matching process and a worked example are in Section 5.1.3 and Appendix 2 of the Australian Fisheries and Aquaculture Industry: Economic Contributions Estimates - Practitioner Guidelines 2019. Data matching schedules are also included in Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report (BDO Econsearch 2019).
4. Details of jurisdictional data custodians identified at the time of the 2017/18 economic estimates study.

¹ Fisheries with adequate cost of fishing data comprised all SA fisheries except Miscellaneous (BDO EconSearch in press 2019a-j), WA Blue Swimmer Crab and Prawns (Daley & Putten 2018), WA Western Rock Lobster (ACIL Allen Consulting), Tasmanian Abalone (EconSearch 2013, Knuckey and Sen 2017) and Commonwealth fisheries Eastern Tuna and Billfish (Mobsby and Bath 2018), Northern Prawn (Mobsby et al. 2019), Southern and Eastern Scalefish and Shark (Bath et al. 2018), Torres Strait Prawn (Skirtun et al. 2015) and Bass Strait Central Scallop (George et al 2012). Aquaculture sectors with adequate cost of production data comprised NSW aquaculture sectors (Barclay et al. 2016), SA aquaculture sectors (BDO EconSearch in press 2019I), Queensland Prawns (ODPIF 2008) and Tasmanian Salmonids (KPMG 2015). Footnote source: 7, *Australian Fisheries and Aquaculture Industry 2017/18: Economic Contributions Estimates Report* (BDO Econsearch 2019).

2. NEW SOUTH WALES DATA SUMMARY (2017/18)

This section summarises the requisite data available for NSW for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for NSW's fisheries and aquaculture industries.

2.1. New South Wales Fisheries and Aquaculture Data Availability

NSW data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 2.2 and Table 2-1) and aquaculture (Section 2.3 and Table 2-2).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data for an item, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

2.2. Fisheries data

Catch

Catch data are collected by New South Wales Department of Primary Industries (NSWDPI) and made available via data request. New South Wales Fisheries confidentiality standards require at least five active fishers per requested data.

Prices

GVP is imputed by NSWDPI based on Sydney Fish Market Prices. This limits GVP estimates to one market price. However, it provides the only basis on which GVP estimates can be made.

Effort, active vessels and boat length

Days fished and number of active fishing business data are collected by NSWDPI and made available via data request. It is recognised that there are limitations to using active business counts in place of active vessels. NSWDPI also collect limited vessel information (e.g. average boat length) and linkage options per fishery (e.g. information about participation in other fisheries).

Management cost and licence fees

Licence fees are available from NSWDPI on request for the Abalone and Lobster fisheries as well as aggregated for all other fisheries.

Cost of fishing

No estimates were available that were both recent and in a form that could be used for the 2017/18 NSCP.

Table 2-1 Assessment of available fisheries data, New South Wales

Fishery	Included				Available data				
	in NSCP?	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone	Yes	✓	✓	✓	✓ ^a	-	-	✓	-
Estuary General	Yes	✓	✓	✓	✓ ^a	-	-	✓	-
Estuary Prawn Trawl	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Lobster	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Ocean Hauling	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Ocean Hauling Purse Seine	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Ocean Trap & Line	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Ocean Trawl	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Sea Urchin & Turban Shell	Yes	✓	✓	✓	✓ ^a	-	-	✓ ^b	-
Inland	No	-	-	-	✓ ^a	-	-	-	-
S37 permit	No	-	-	-	✓ ^a	-	-	-	-
Proportion of GVP (quality weighted)		100%	100%	100%	50%	0%	0%	66%	0%

^a Only active 'fishing businesses' is known.

^b Licence fees for these fisheries are held as a total for the group.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: New South Wales Department of Primary Industries and personal communication (12/4/2019)

2.3. Aquaculture data

Production

Production data are collected by NSW DPI for all aquaculture sectors and are reported in the *Aquaculture Production Report* (NSW DPI 2018). Production data for 'other aquaculture' is not published as it consists of many different species.

Prices

GVP is imputed by NSW DPI based on Sydney Fish Market Prices. This limits GVP estimates to one market price. However, it provides the only basis on which analysis can be undertaken. GVP figures are reported in NSW DPI (2018).

Number of active operators

The number of active operators is collected for all aquaculture sectors and is available from NSW DPI on request.

Management cost and licence fees

Licence fee data are collected by NSW DPI. A fee schedule is published by the department. Licence fees can be calculated using the fee schedule and licencing information provided by NSW DPI.

New South Wales licences fees are paid into a trust which funds aquaculture management. It is noted that fees currently charged are inadequate to cover management costs. A review of licence fees is planned, and should result in equating licence fees to expected management costs.

Table 2-2 Assessment of available aquaculture data, New South Wales

Aquaculture sector	Included in NSCP?	Available data					
		Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Black Tiger Prawn	Yes	✓	✓	✓	✓	✓	-
Yabby	Yes	✓	✓	✓	✓	✓	-
Barramundi	Yes	✓	✓	✓	✓	✓	-
Goldern and Silver Perch	Yes	✓	✓	✓	✓	✓	-
Murray Cod	Yes	✓	✓	✓	✓	✓	-
Rainbow Trout	Yes	✓	✓	✓	✓	✓	-
Hatchery Species	Yes	✓	✓	✓	✓	✓	-
Sydney Rock Oyster	Yes	✓	✓	✓	✓	✓	✓
Pacific and Native Oyster	Yes	✓	✓	✓	✓	✓	✓
Oyster Spat	Yes	✓	✓	✓	✓	✓	✓
Other aquaculture ^a	No	np	✓	✓	✓	✓	-
Proportion of GVP (quality weighted)		100%	100%	100%	100%	100%	71%

^a Species include: Akoya Pearl, Australian Paratya, Bloodworms, Blue Mussel, Brook Trout, Floodplain Mussels, Moreton Bay Bugs, Mulloway, Native Oysters. GVP is unknown for this sector so the 'Proportion of GVP (quality weighted)' row excludes it.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: New South Wales Department of Primary Resources and personal communication (5/4/2019)

Cost of production

An FRDC funded social and economic evaluation of New South Wales coastal aquaculture was undertaken by Barclay et al. (2016). The study provides detailed cost information for Oyster and non-Oyster businesses. Due to insufficient responses in the study, other aquaculture species were aggregated into the non-Oyster descriptor. It is recognised that this broad aggregation of sectors creates limitations to using the published non-Oyster cost structure, especially at a fishery level. The cost structure was used in the NSCP as contribution estimates were produced at the state and national levels.

2.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 2-3 and aquaculture sectors in Table 2-4. Fisheries and aquaculture sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. Available data for some fisheries and sectors in NSW provide no basis for estimating GVP so these have also been excluded (i.e. for the Inland and S37 Permit fisheries and the Other Aquaculture sector). For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for NSW.

Table 2-3 Assessment of key data gaps and quality issues, Commercial Fisheries, New South Wales

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone	-	-	-	Quality	Gap	Gap	-	Gap
Estuary General	-	-	-	Quality	Gap	Gap	-	Gap
Lobster	-	-	-	Quality	Gap	Gap	Quality	Gap
Ocean Hauling	-	-	-	Quality	Gap	Gap	Quality	Gap
Ocean Hauling Purse Seine	-	-	-	Quality	Gap	Gap	Quality	Gap
Ocean Trap & Line	-	-	-	Quality	Gap	Gap	Quality	Gap
Ocean Trawl	-	-	-	Quality	Gap	Gap	Quality	Gap

Source: BDO EconSearch analysis

Table 2-4 Assessment of key data gaps and quality issues, Aquaculture, New South Wales

Aquaculture sector	Data Gaps and Quality Issues						
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.	
Black Tiger Prawn	-	-	-	-	-	Gap	
Murray Cod	-	-	-	-	-	Gap	
Hatchery Species	-	-	-	-	-	Gap	

Source: BDO EconSearch analysis

2.5. Data matching schedules for NSW fisheries and aquaculture

NSW Fishery	Like Fishery ^a	Comments
Abalone	SA Abalone	Selected based on gear usage (diver hand collection) and target species (Abalone)
Estuary General	SA Lakes and Coorong (Net Only)	Selected based on gear usage, product type and environment (net fishing, multi species and Coorong similarities to estuarine environments)
Estuary Prawn Trawl	SA Spencer Gulf Prawn	Selected based on gear usage and product type (trawl and prawns)
Lobster	SA Rock Lobster Southern Zone	Selected based on gear usage (pots) and target species (Lobster)
Ocean Hauling	SA Marine Scalefish (Net & Line)	Selected based on gear usage and product type (net fishing and multi species)
Ocean Hauling Purse Seine	SA Sardine	Selected based on gear usage and vessel characteristics (net fishing and larger boats)
Ocean Trap & Line	SA Marine Scalefish (Net & Line)	Selected based on gear usage (lines) and product type (marine scalefish)
Ocean Trawl	SA Spencer Gulf Prawn	Selected based on gear usage (trawl)
Sea Urchin & Turban Shell	SA Abalone	Selected based on gear usage (diver hand collection)

^a Cost of fishing data sourced from BDO EconSearch (2019b,c,d,g,i,j). The NSW fisheries were matched, rather than using an existing study (Voyer et al. 2016), due to difficulties in relating the reported cost structure data to defined fisheries (reported across mixed NSW fisheries). There was also no basis provided in the report on how to scale up to total state fishery, although this would have been done to derive state wide economic contribution estimates. As indicated in the report, the sample size was also quite low (less than 5 per cent of licences).

Source: BDO EconSearch analysis

NSW Aquaculture	Like Sector ^a	Comments
Black Tiger Prawn	NSW Other Aquaculture	Selected based on species produced and State specific data
Yabby	NSW Other Aquaculture	Selected based on species produced and State specific data
Barramundi	NSW Other Aquaculture	Selected based on species produced and State specific data
Golden/ Silver Perch	NSW Other Aquaculture	Selected based on species produced and State specific data
Murray Cod	NSW Other Aquaculture	Selected based on species produced and State specific data
Rainbow Trout	NSW Other Aquaculture	Selected based on species produced and State specific data
Hatchery Species	NSW Other Aquaculture	Selected based on species produced and State specific data
Sydney Rock Oyster	NSW Oyster	Selected based on species produced and State specific data
Other Oyster	NSW Oyster	Selected based on species produced and State specific data
Oyster Spat	NSW Oyster	Selected based on species produced and State specific data

^a Cost of production data sourced from Barclay et al (2016). Other aquaculture represents all non-oyster production in NSW.

Source: BDO EconSearch analysis

2.6. Data custodians

Fisheries

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3. VICTORIAN DATA SUMMARY (2017/18)

This section summarises the requisite data available for Victoria for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for Victoria's fisheries and aquaculture industries.

3.1. Victorian Fisheries and Aquaculture Data Availability

Victorian data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 3.2 and Table 3-5) and aquaculture (Section 3.3 and Table 3-6).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that item-fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

3.2. Fisheries data

Catch

Catch data are collected for almost all fisheries. Confidentiality issues exist, given that individual fisheries are divided by region, species and method (e.g. trawl, dive, etc.). To confidentialise data, fishery catch is aggregated by location. This aggregation can be problematic for modelling purposes as it groups dissimilar fishing methods and species caught.

Typically, the fisheries are aggregated as follows

- *Gippsland and Lake Tyres fisheries*: Gippsland Lakes Bait Fishery, Gippsland Lakes Fishery, Gippsland Lakes Mussel Dive Fishery and Lake Tyers Bait Fishery.
- *Offshore fisheries*: Inshore Trawl Fishery, Ocean Fishery, Ocean Purse Seine Fishery, Pipi Fishery and Ocean Scallop Fishery
- *Port Phillip Bay fisheries*: Port Phillip Bay Mussel Bait Fishery, Port Phillip Western Port Fishery and Port Phillip Bay Dive Scallop Fishery.

Obtaining data for the Port Phillip Scallop Dive fishery may be problematic. There is only one licence in this fishery with a significant quota (approximately 600t). The ocean scallop fishery has a low level of activity and is too different (i.e. by method) to be a viable candidate for aggregation.

Obtaining data for the Pipi fishery may be difficult given it is a developmental fishery. Similarly, most of the bait fisheries are likely to be too small to report separately. These being the Mallacoota Lower Lake Bait (1 licence), Lake Tyers Bait (1), Snowy River Bait (2) and Sydenham Inlet Bait fisheries (2).

Victorian fisheries confidentiality standards require at least five active fishers per requested data.

Prices

GVP data are readily available for key single species fisheries (Rock Lobster and Abalone). Price/GVP estimates for multi species fisheries can be estimated using fishery catch data (by species) and price data.

Abalone price is given for all zones combined. This is inconsequential for a whole of state economic analysis. Prices are unlikely to vary between geographic locations so this should be considered for a regional contribution assessment.

Latest price data for the multi species fisheries generally date to 2014/15. Price data for some key species (such as Australian Salmon, Pilchards and Shortfin Eels) are updated on a yearly basis.

Table 3-5 Assessment of available fisheries data, Victoria

Fishery	Included	Available data							
	in NSCP?	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone Central Zone	Yes	✓	✓	✓	✓ ^b	-	✓	✓	-
Abalone Eastern Zone	Yes	✓	✓	✓	✓ ^b	-	✓	✓	-
Abalone Western Zone	Yes	✓	✓	✓	✓ ^b	-	✓	✓	-
Corner Inlet	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Gippsland Lakes	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Ocean Purse Seine	Yes	np	np	np	✓ ^b	-	✓	✓	-
Port Phillip Western Port	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Eel	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
General Bait	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Gippsland Lakes Bait	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Mallacoota Lower Lake Bait	Yes	✓	✓ ^a	np	✓ ^b	-	✓	✓	-
Giant Crab	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Inshore Trawl	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Ocean	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Sea urchin	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Southern Rock Lobster Eastern Zone	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Southern Rock Lobster Western Zone	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Wrasse	Yes	✓	✓ ^a	✓	✓ ^b	-	✓	✓	-
Ocean Scallop	No	np	np ^a	np	✓ ^b	-	✓	✓	-
Port Phillip Bay Dive Scallop	No	np	np ^a	np	✓ ^b	-	✓	✓	-
Gippsland Lakes Mussel Dive	No	-	np ^a	-	-	-	✓	✓	-
Port Phillip Bay Mussel Bait	No	-	np ^a	-	-	-	✓	✓	-
Snowy River Bait	No	np	-	np	✓ ^b	-	✓	✓	-
Sydenham Inlet Bait	No	np	-	np	✓ ^b	-	✓	✓	-
Proportion of GVP (quality weighted)		100%	71%	100%	50%	0%	100%	100%	0%

^a Price data are held by VFA on a species basis but some prices were last updated in 2014/15 and there is no correspondence to the fishery level for multi-species fisheries.

^b Only active 'licences' is known.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Victorian Fisheries Authority and personal communication (11/7/18)

Effort, active vessels and boat length

Days fished and active vessels are collected in log book returns in all fisheries. Similar to catch data, the confidentiality requirement is that there be five active fishers.

Diver hours are also available for the Abalone fisheries and pot lifts are also collected for the Rock Lobster and Giant Crab fisheries.

Boat length or any other close proxy, are not collected by the Victorian Fisheries Authority (VFA). Total number of pots are available for the Rock Lobster fisheries, however estimating boat length and capital costs based on these data would be problematic.

Management cost and licence fees

Victorian fisheries operate on a full cost recovery basis. Management costs are available for all fisheries. Though some licence fees are confidential, they can be assumed to equal management costs due to full cost recovery.

Cost of fishing

No cost structure data are currently available for Victorian commercial fisheries. However, a study is currently underway that is expected to publish usable data.

3.3. Aquaculture data

Production

Production data are collected by VFA for all aquaculture sectors and are reported in the *Commercial Fish Production Information Bulletin* (VFA 2018).

Prices

Abalone, Blue Mussel and state total GVP are published in the *Commercial Fish Production Information Bulletin* (VFA 2018). Other values can be estimated from ABARES statistics (Mobsby 2018).

Number of active operators

The number of active operators is collected for all aquaculture sectors.

Table 3-6 Assessment of available aquaculture data, Victoria

Aquaculture sector	Included		Available data				
	in NSCP?	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Salmonids	Yes	✓	✓	✓	✓	✓	-
Warmwater Finfish (Inland)	Yes	✓	✓	✓	✓	✓	-
Abalone	Yes	✓	✓	✓	✓	✓	-
Blue Mussel & Other Molluscs (Bivalves)	Yes	✓	✓	✓	✓	✓	-
Ornamental Fish	No	✓	np	✓	✓	✓	-
Freshwater Eels	No	✓	✓	✓	✓	✓	-
Yabby	No	✓	✓	✓	✓	✓	-
Other aquaculture	No	np	np	✓	✓	✓	-
Proportion of GVP (quality weighted)		100%	100%	100%	100%	100%	0%

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Victorian Fisheries Authority and personal communication (11/7/18)

Management cost and licence fees

Victorian aquaculture operates on a full cost recovery basis. Management costs are available for all sectors. Though most licence fees are confidential, they can be assumed to be close to management costs due to cost recovery.

Cost of production

No cost structure data are currently available for Victorian aquaculture sectors. However, a study is currently underway that is expected to publish usable data.

3.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 3-7 and aquaculture sectors in Table 3-8. Fisheries and aquaculture sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. Available data for some fisheries and sectors in Victoria provide no basis for estimating GVP so these have also been excluded. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for Victoria.

Table 3-7 Assessment of key data gaps and quality issues, Commercial Fisheries, Victoria

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone Central Zone	-	-	-	Quality	Gap	-	-	Gap
Abalone Eastern Zone	-	-	-	Quality	Gap	-	-	Gap
Southern Rock Lobster Eastern Zone	-	Quality	-	Quality	Gap	-	-	Gap
Southern Rock Lobster Western Zone	-	Quality	-	Quality	Gap	-	-	Gap

Source: BDO EconSearch analysis

Table 3-8 Assessment of key data gaps and quality issues, Aquaculture, Victoria

Aquaculture sector	Data Gaps and Quality Issues						
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.	
Salmonids	-	-	-	-	-	Gap	
Warmwater Finfish (Inland)	-	-	-	-	-	Gap	
Abalone	-	-	-	-	-	Gap	
Blue Mussel & Other Molluscs (Bivalves)	-	-	-	-	-	Gap	

Source: BDO EconSearch analysis

3.5. Data matching schedules for VIC fisheries and aquaculture

Vic. Fishery	Like Fishery ^a	Comments
Abalone	SA Abalone	Selected based on gear usage (diver hand collection) and target species (Abalone)
Net and line	SA Marine Scalefish Fishery (net & line)	Selected based on gear usage and product type (net fishing and multi species)
Eel	SA Abalone Fishery (boat associated costs removed)	Catch method involves setting up traps nearshore. Should have a similar cost structure to other harvesting operations which do not use boats.
Bait	SA Marine Scalefish Fishery (net & line)	Selected based on gear usage and product type (net fishing and multi species)
Other ^b	SA Sardine	Closest selection based on gear usage (purse seine) and product type (sardines) of major contributor to GVP
Inshore Trawl	SA Spencer Gulf Prawn Fishery	Selected based on gear usage (trawl)
Ocean	SA Marine Scalefish Fishery (net & line)	Selected based on gear usage (net fishing)
Sea Urchin & Turban Shell	SA Abalone Fishery	Selected based on gear usage (diver hand collection)
Southern Rock Lobster	SA Rock Lobster Southern Zone	Selected based on gear usage (pots) and target species (Southern Rock Lobster)
Wrasse	SA Marine Scalefish Fishery (line only)	Selected based on gear usage and product type (line fishing and scalefish)

^a Cost of fishing data sourced from BDO EconSearch (2019c,d,g,i,j)

^b Confidential fisheries which include Purse Seine, Giant Crab and Scallop fisheries

Source: BDO EconSearch analysis

Vic. Aquaculture	Like Sector ^a	Comments
Salmonids	SA Fresh Water Finfish	Selected based on species produced (trout species and Barramundi)
Warm Water Finfish (Inland)	SA Fresh Water Finfish	Selected based on species produced (freshwater finfish, e.g. Murray Cod, Silver Perch)
Abalone	SA Abalone	Selected based on species produced (Abalone)
Blue Mussel & Other Molluscs	SA Mussel	Selected based on species produced (Mussels)

^a Cost of production data sourced from BDO EconSearch (2019I)

Source: BDO EconSearch analysis

3.6. Data custodians

The data custodians identified are:

Fisheries and Aquaculture

Paula Baker (Manager, Policy and Licensing - Catch and Effort Unit)

Victorian Fisheries Authority

4. QUEENSLAND DATA SUMMARY (2017/18)

This section summarises the requisite data available for Queensland for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for Queensland's fisheries and aquaculture industries.

4.1. Queensland Fisheries and Aquaculture Data Availability

Queensland data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 4.2 and Table 4-9) and aquaculture (Section 0 and Table 4-10).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that item-fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

4.2. Fisheries data

Catch

Catch data are available for all fisheries in the *Queensland Fisheries Summary Report* (QDAF 2018a).

Queensland Department of Agriculture and Fisheries (QDAF) also provides an online interface tool, "QFish", which can query logbook datasets. QFish provides catch, days fished, and active licence count data by main fishing method (e.g. line, net, trawl), species, time period and logbook type.

Charter boat catch data are available from QFish; however, log book returns are only required for offshore fishing trips. Some catch, particularly species which are targeted nearshore (e.g. crabs), may be understated in the data.

Queensland fisheries confidentiality standards require at least five active boats per requested data.

Prices

Price data were last collected for 2012. The 2012 figures allow QDAF to report GVP to ABARES and in the *Queensland Fisheries Summary Report* (2018a). QDAF advise the GVP figures may be unreliable for economic analysis, and suggest making price adjustments in line with the *Australian Fisheries and Aquaculture Statistics Report* (Mobsby 2018). Price and GVP are not available for several fisheries, including some which have anecdotally not insignificant GVP (Sea Cucumber, Coral, Marine Aquarium and East Coast Pearl).

Effort, active vessels and boat length

Days fished and active licences are collected in log book returns. These figures are also available by major fishing method (e.g. line, net, trawl, etc.) and species on QFish. As with catch data, the confidentiality requirement of five active fishers applies.

Queensland's public register of fishing authorities (FishNet Public) can be used to query licensing data for various fishery symbols². The register provides boat length data, as well as hull units, beam, depth and main engine power figures. However, the register only includes primary boats which are recorded on the licence card. Tender boats, which are used with a primary boat in certain fisheries, cannot be longer than 7 metres. The absence of tender boat registrations means that only the number of active licences can be collected rather than the number of active vessels. Determining boat lengths for fisheries with authority to access the same resource may be difficult. Difficulty may exist in the Blue Swimmer Crab and Mud Crab fisheries where, despite the fishers having the same access, they are likely to use different vessels in each fishery.

^c Boat length is only recorded for one boat per licence.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Queensland Department of Agriculture and Fisheries and personal communication (16/07/18)

Management cost and licence fees

Licence fee data are collected by QDAF. A fee schedule is publically available on the Business Queensland web portal. Recurring licence fees for a particular business can be modelled using the fee schedule and licencing information on FishNet Public but are not published aggregated by fishery.

Queensland fisheries do not operate on a full cost recovery basis. Management costs are collected on aggregate but not on a fishery basis.

Cost of fishing

No cost structure data are currently available for Queensland commercial fisheries. However, a study is currently underway that is expected to publish usable data.

² Queensland fisheries differ from other jurisdiction as fishery symbol (opposed to licences) gives fishers authority to operate in particular fisheries. Symbols are registered to a Queensland commercial fishing or harvest licence, and in some fisheries can be used with non-primary (tender) boat(s).

Table 4-9 Assessment of available fishery data, Queensland

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Blue Swimmer Crab	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Coral Reef Finfish	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Tropical Rock Lobster	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Deep Water Fin Fish	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
East Coast Inshore	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
East Coast Trawl	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
East Coast Spanish Mackerel	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
River and Inshore Beam Trawl	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Gulf Of Carpentaria Inshore Fin Fish	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Gulf of Carpentaria Line	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Mud Crab	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Eel Adult	Yes	✓	np ^b	✓	✓ ^a	-	np	np	-
Rocky Reef Fin Fish	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Spanner Crab	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Fin Fish (Stout Whiting) Trawl	Yes	✓	✓ ^b	✓	✓ ^a	✓ ^c	np	np	-
Coral	No	✓	np ^b	✓	✓ ^a	-	np	np	-
Marine Aquarium	No	✓	np ^b	✓	✓ ^a	-	np	np	-
Sea Cucumber	No	✓	np ^b	✓	✓ ^a	-	np	np	-
East Coast Pearl	No	✓	np ^b	✓	✓ ^a	✓ ^c	np	np	-
Trochus	No	✓	np ^b	✓	✓ ^a	-	np	np	-
Eel Juvenile	No	✓	np ^b	✓	✓ ^a	-	np	np	-
Proportion of GVP (quality weighted)		100%	50%	100%	50%	50%	50%	50%	0%

^a Only active 'licences' is known.

^b Price data have not been updated since 2012.

4.3. Aquaculture data

Production

All holders of an aquaculture development authority (licence) are required to complete a mandatory annual production survey. Production data are reported in the *Ross Lobegeiger report to farmers - Aquaculture production summary report* (QDAF 2018b).

Production of some species groups are reported together (e.g. Banana, Black Tiger and Kuruma Prawns; Golden and Silver Perch; Mud Crab and Red Claw).

Table 4-10 Assessment of available aquaculture data, Queensland

Aquaculture sector	Included in NSCP?	Available data					
		Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Barramundi	Yes	✓	✓	✓	-	-	-
Golden and Silver Perch	Yes	✓	✓	✓	-	-	-
Crustaceans (Mud Crab and Red Claw)	Yes	✓	✓	✓	-	-	-
Aquarium	Yes	✓	✓	✓	-	-	-
Hatchery (Redclaw, oyster and other)	Yes	np	✓ ^a	✓	-	-	-
Freshwater Fish (excl. above perch)	Yes	✓	✓	✓	-	-	-
Edible Oysters	Yes	✓	✓	✓	-	-	-
Prawns (including hatchery)	Yes	✓	✓	✓	-	-	✓ ^b
Other aquaculture	Yes	✓	✓	✓	-	-	-
Proportion of GVP (quality weighted)		99%	99%	100%	0%	-	34%

^a GVP is known but not production or price.

^b Cost data are from 2008.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Queensland Department of Agriculture and Fisheries and personal communication (29/4/2019)

Prices

Up to date price data and GVP estimates are also provided in QDAF (2018b) at the same species aggregation as for production.

Number of active operators

QDAF (2018b) provides the number of producing farms for all non confidentialised sectors. Disaggregated counts of producing farms can be provided by QDAF.

Management cost and licence fees

There are no licence fees for Queensland aquaculture. Aquaculture management costs on a per sector basis are not compiled or reported by QDAF.

Cost of production

QDAF provide aquaculture employment estimates, production and ponded area figures by statistical division in QDAF (2018b). The employment estimates provide some useful information but no wages or other business costs are available.

A thesis by Nazri (2017) published cost structure data for prawn aquaculture for 2008. While these are outdated data, they were used in the NSCP due to a lack of an appropriate matching aquaculture sector with cost data as required by the NSCP method. The 2008 cost structure was updated by applying appropriate index changes to individual cost items between 2008 and present.

4.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 4-11 and aquaculture sectors in Table 4-12. Fisheries and aquaculture sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. Available data for some fisheries in Queensland provide no basis for estimating GVP so these have also been excluded. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap')

or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for Queensland.

Table 4-11 Assessment of key data gaps and quality issues, Commercial Fisheries, Queensland

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Coral Reef Finfish	-	Quality	-	Quality	Quality	Quality	Quality	Gap
East Coast Inshore	-	Quality	-	Quality	Quality	Quality	Quality	Gap
East Coast Trawl	-	Quality	-	Quality	Quality	Quality	Quality	Gap
Gulf Of Carpentaria Inshore Fin Fish	-	Quality	-	Quality	Quality	Quality	Quality	Gap
Mud Crab	-	Quality	-	Quality	Quality	Quality	Quality	Gap
Spanner Crab	-	Quality	-	Quality	Quality	Quality	Quality	Gap

Source: BDO EconSearch analysis

Table 4-12 Assessment of key data gaps and quality issues, Aquaculture, Queensland

Aquaculture sector	Data Gaps and Quality Issues					
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Barramundi	-	-	-	Gap	Gap	Gap
Prawns (including hatchery)	-	-	-	Gap	Gap	Quality

Source: BDO EconSearch analysis

4.5. Data matching schedules for QLD fisheries and aquaculture

Qld. Fishery	Like Fishery ^a	Comments
Blue Swimmer Crab	SA Blue Crab	Selected based on gear usage (pots) and target species (Blue Swimmer Crab).
Coral	Excluded	Excluded as catch and GVP data unavailable. Effort is available but problematic as days fished may be double-counted in other fisheries.
Coral Reef and Deep Water Fin Fish Fisheries	SA Marine Scalefish (Line)	Selected based on gear usage (line fishing) and product type (multi-species).
Tropical Rock Lobster	SA Abalone	Selected based on gear usage (diver hand collection) and type of product (high-value export).
East Coast Inshore	SA Marine Scalefish (Net & Line)	Selected based on gear usage (net and line fishing) and product type (multi-species).
East Coast Trawl	Northern Prawn Fishery	Selected based on gear (trawl nets) and product type (primarily prawns).
Other Commercial Harvest	Excluded	Excluded as data availability is limited.
Spanish Mackerel	SA Marine Scalefish (Line)	Selected based on gear usage (line).
Other Commercial Trawl	Northern Prawn Fishery	Selected based on gear (trawl nets).
Gulf Of Carpentaria Inshore Fin Fish	SA Marine Scalefish (Net & Line)	Selected based on gear usage (line and net) and product type (multi-species).
Gulf of Carpentaria Line	SA Marine Scalefish (Line)	Selected based on gear usage (line) and product type (multi-species).
Marine Aquarium	Excluded	Excluded as catch and GVP are unavailable. Effort is available but problematic as days fished may be double-counted in other fisheries.
Mud Crab	SA Blue Crab	Selected based on gear usage (pot) and target species (Crab).
Eel	SA Abalone Fishery (boat associated costs removed)	Catch method involves setting up traps nearshore. Should have a similar cost structure to other harvesting operations which do not use boats.
Rocky Reef	SA Marine Scalefish (Line)	Selected based on gear usage (line) and product type (multi-species).
Spanner Crab	SA Rock Lobster Southern Zone	Selected based on gear usage (pots in deep water).

^a Cost of fishing data sourced from BDO EconSearch (2019c,f,g,i) for SA fisheries and Mobsby et al. (2019) for the Northern Prawn fishery.

Source: BDO EconSearch analysis

Qld. Aquaculture	Like Sector	Comments
Golden Perch and Silver Perch	SA Fresh Water Finfish ^a	Selected based on species produced (freshwater finfish)
Mud Crab and Red Claw	SA Yabbies ^a	Selected based on species produced (crustaceans)
Aquarium	SA Fresh Water Finfish ^a	Selected based on species produced (freshwater finfish)
Hatchery (Redclaw, Edible Oysters and Other)	SA Oysters ^a	Closest match from available data. Modelled using oysters due to lack of Redclaw data
Barramundi	SA Fresh Water Finfish ^a	Selected based on species produced (freshwater finfish)
Edible Oysters	SA Oysters ^a	Selected based on species produced (Oysters)
Freshwater Fish (ex golden perch & silver perch)	SA Fresh Water Finfish ^a	Selected based on species produced (freshwater finfish)
Other ^b	NSW Other Aquaculture ^c	Closest match from available data
Prawns (includes hatchery)	QLD Prawns ^d	Same sector i.e. no matching required

^a Cost of production data sourced from BDO EconSearch (2019)

^b Includes marine fish, worms, sea cucumbers, algae and ulva, crustaceans and other bivalves

^c Cost of production data sourced from Barclay et al (2016)

^d Cost of production data sourced from QDPIF (2008)

Source: BDO EconSearch analysis

4.6. Data custodians

The data custodians identified are:

Fisheries and Aquaculture

Genevieve Phillips

Senior Fisheries Resource Officer

Fisheries Queensland

Department of Agriculture and Fisheries

5. SOUTH AUSTRALIA DATA SUMMARY (2017/18)

This section summarises the requisite data available for South Australia for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for South Australia's fisheries and aquaculture industries.

5.1. South Australian Fisheries and Aquaculture Data Availability

South Australian data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 5.2 and Table 5-13) and aquaculture (Section 5.3 and Table 5-14).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that item-fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

5.2. Fisheries data

Catch

Catch data are collected by the South Australian Research and Development Institute (SARDI) and made available via Primary Industries and Regions South Australia (PIRSA) data request. Catch data are also publically available in BDO EconSearch fishery economic indicator reports (EconSearch 2019a-k and SARDI stock assessment reports).

South Australian fisheries confidentiality standards require at least five active fishers per requested data. For where there are fewer, permission is required from the affected fishers to release the data.

Table 5-13 Assessment of available fisheries data, South Australia

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Blue Crab	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Lakes and Coorong	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Marine Scalefish	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Gulf St Vincent	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Spencer Gulf Prawn	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Northern Rock Lobster	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Southern Rock Lobster	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Sardine	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
West Coast Prawn	Yes	✓	✓	✓	✓ ^a	✓	✓	✓	✓
Miscellaneous	Yes	✓	✓	✓	✓ ^a	-	✓	✓	-
Proportion of GVP (quality weighted)		100%	100%	100%	50%	99%	100%	100%	99%

^a Only active 'licence' counts available.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: BDO EconSearch

Prices

GVP data are collected by SARDI and made available via PIRSA data request. GVP data are also available by major species for the multi species fisheries (i.e. Marine Scalefish and Lakes and Coorong Fisheries). Monthly price data are also collected by SARDI and available by request.

GVP and prices are also publically available in BDO EconSearch fishery economic indicator reports (EconSearch 2019a-k).

Effort, active vessels and boat length

Days fished and active licence counts data are collected by SARDI and made available via PIRSA data request. In addition to days fished, effort by fishery is also provided in terms of pot lifts in the Rock Lobster and Blue Crab fisheries.

Boat length data for active vessels are collected by BDO EconSearch through a survey of commercial fisheries every three years, except for the Miscellaneous fishery (EconSearch 2019a-k).

Management cost and licence fees

Licence fees for all South Australian fisheries are collected by PIRSA and made available via data request.

As South Australian fisheries operate on a full cost recovery basis, management costs can be estimated based on licence fee data. The available licencing data are itemised by management activities and fishery zones.

Cost of fishing

Annual economic indicator reports are produced by BDO EconSearch for all SA fisheries, excluding the Miscellaneous fishery (EconSearch 2019a-k). The compilation of the economic indicator reports involves a survey of commercial fisheries every three years. Data collected includes detailed operating cost and capital

expenditure. Cost data are updated for the two years between surveys using a range of variously sourced catch, effort and price data.

5.3. Aquaculture data

Production

Production data are collected by PIRSA and are made available via data request. Data are provided by individual operator and include information on species (e.g. Oysters, Tuna, etc.), type (fingerlings, mature, etc.) and weight and/or quantity sold. These data are identifiable and must be aggregated before publishing. Production data are also publically available in BDO EconSearch aquaculture economic contribution reports (EconSearch 2019).

Prices

Average farm gate prices for species sold are collected by PIRSA and are made available via data request. Price and GVP data are also publically available in BDO EconSearch aquaculture economic contribution reports (EconSearch 2019).

Number of active operators

Active operator counts are collected by PIRSA and are made available via data request. The number of active operators is also publically available in BDO EconSearch aquaculture economic contribution reports (EconSearch 2019).

Management cost and licence fees

A leasing and licence fee schedule is published by PIRSA in a way that sector level fees can be modelled.

South Australian aquaculture management operates on a cost recovery basis. Management costs can be established based on leasing and licensing fees.

Table 5-14 Assessment of available aquaculture data, South Australia

Aquaculture sector	Included		Available data				
	in NSCP?	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Abalone	Yes	✓	✓	✓	✓	✓	np ^b
Freshwater Finfish	Yes	✓	✓	✓	✓	✓	np ^b
Marine Finfish	Yes	✓	✓	✓	✓	✓	np ^b
Marron & Yabbies	Yes	✓	✓	✓	✓	✓	np ^b
Mussels	Yes	✓	✓	✓	✓	✓	np ^b
Oysters	Yes	✓	✓	✓	✓	✓	np ^b
Southern Bluefin Tuna	Yes	✓	✓	✓	✓	✓	np ^b
Other aquaculture ^a	Yes	✓	✓	✓	✓	✓	np ^b
Proportion of GVP (quality weighted)		100%	100%	100%	100%	100%	50%

^a Other aquaculture production includes Algae, Silver Perch (including fingerlings and spat), Goldfish and other production.

^b Cost structures are modelled from various information rather than estimated through a business survey.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: BDO EconSearch

Cost of production

Annual economic contribution reports are produced by BDO EconSearch for South Australian aquaculture (EconSearch 2019). The economic contribution reports estimate aquaculture costs based on various surveys of producers and ad hoc industry feedback on standard enterprise cost structures. These are, therefore, modelled cost structures rather than survey-based and are not detailed in the reports.

5.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 5-15 and aquaculture sectors in Table 5-16. Fisheries and sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for South Australia.

Table 5-15 Assessment of key data gaps and quality issues, Commercial Fisheries, South Australia

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone	-	-	-	Quality	-	-	-	-
Marine Scalefish	-	-	-	Quality	-	-	-	-
Spencer Gulf Prawn	-	-	-	Quality	-	-	-	-
Northern Rock Lobster	-	-	-	Quality	-	-	-	-
Southern Rock Lobster	-	-	-	Quality	-	-	-	-
Sardine	-	-	-	Quality	-	-	-	-

Source: BDO EconSearch analysis

Table 5-16 Assessment of key data gaps and quality issues, Aquaculture, South Australia

Aquaculture sector	Data Gaps and Quality Issues						
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.	
Abalone	-	-	-	-	-	Quality	
Marine Finfish	-	-	-	-	-	Quality	
Oysters	-	-	-	-	-	Quality	
Southern Bluefin Tuna	-	-	-	-	-	Quality	

Source: BDO EconSearch analysis

5.5. Data matching schedules for SA fisheries and aquaculture

SA Fishery	Like Fishery ^a	Comments
Abalone		Same fishery, i.e. no matching required
Blue Crab		Same fishery, i.e. no matching required
Lakes and Coorong		Same fishery, i.e. no matching required
Marine Scalefish		Same fishery, i.e. no matching required
Northern Zone Rock Lobster		Same fishery, i.e. no matching required
Southern Zone Rock Lobster		Same fishery, i.e. no matching required
Gulf St Vincent Prawns		Same fishery, i.e. no matching required
Spencer Gulf Prawns		Same fishery, i.e. no matching required
Sardine		Same fishery, i.e. no matching required
Miscellaneous	SA Rock Lobster Southern Zone	Selected based on gear usage (pots)

^a Cost of fishing data sourced from BDO EconSearch (2019a-d,f-j)

Source: BDO EconSearch analysis

SA Aquaculture	Like Fishery ^a	Comments
Tuna		Same sector i.e. no matching required
Marine Finfish		Same sector i.e. no matching required
Oysters		Same sector i.e. no matching required
Mussels		Same sector i.e. no matching required
Abalone		Same sector i.e. no matching required
Freshwater Finfish		Same sector i.e. no matching required
Marron and Yabbies		Same sector i.e. no matching required
Other ^b		Same sector i.e. no matching required

^a Cost of production data sourced from BDO EconSearch (2019I)

^b Comprised of Algae, Silver Perch, Shortfin Eel and Barcoo Grunter

Source: BDO EconSearch analysis

5.6. Data custodians

The data custodians identified are:

Fisheries

Angelo Tsolos

Manager

*South Australian Research and Development
Institute - Aquatic Science*

Aquaculture

Gavin Begg

Research Chief

*South Australian Research and Development
Institute - Aquatic Science*

6. WESTERN AUSTRALIA DATA SUMMARY (2017/18)

This section summarises the requisite data available for WA for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for WA's fisheries and aquaculture industries.

6.1. Western Australian Fisheries and Aquaculture Data Availability

West Australian data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 6.2 and Table 6-17) and aquaculture (Section 6.3 and Table 6-18).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that item-fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

6.2. Fisheries data

Catch

Catch data are collected by Western Australia Primary Industries and Regional Development (WAPIRD) for all fisheries and can be made available on request. Catch data are also published in the *Status Reports of the Fisheries and Aquatic Resources of Western Australia* (Gaughan and Santoro 2019). Confidentiality issues exist, given that individual fisheries are divided into many by region, species and method (e.g. trawl, dive) resulting in a smaller number of licences in each. To confidentialise data, these fisheries need to be aggregated to a higher level.

Western Australian fisheries confidentiality standards require at least three active fishers per requested data.

Prices

WAPIRD regularly collect and update price data for each marine species caught in Western Australia. The prices are based on data from West Australian land based processors and are based on whole weight. Average prices per kilogram by species are published in Gaughan and Santoro (2019) so fishery GVP can be reliably calculated for single species fisheries where catch is known and the fishery is either localised or price is stable across regions. GVP by fishery is also estimated for most fisheries in Gaughan and Santoro (2019).

Effort, active vessels and boat length

Days fished and active vessels are collected in log book returns in most fisheries. Similar to catch data, the confidentiality standards require at least three active fishers per requested data.

Boat length or any other close proxy, is not compiled or reported by the WAPIRD. Boat lengths can be established using fishery licencing data and Australian Maritime Safety Authority data.

Table 6-17 Assessment of available fisheries data, Western Australia

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone (Greenlip/Brownlip)	Yes	✓	✓	✓	✓	✓	-	-	-
Abrolhos Islands and Mid West Trawl Managed	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Bremer Bay and Esperance Purse Seine	Yes	✓	✓ ^a	✓	✓	-	-	-	-
Cockburn Sound Line and Pot	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Exmouth Gulf Prawn	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Gascoyne Demersal Scalefish	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Kimberley Developing Mud Crab	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Kimberley Gillnet and Barramundi	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Kimberley Prawn	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Lake Argyle Catfish	Yes	✓	✓ ^a	✓	✓	np	-	-	-
Mackerel	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Nickol Bay Prawn	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Northern Demersal Scalefish	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Octopus	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Pearl Oyster Fishery	Yes	✓	✓ ^a	✓	✓	-	-	-	-
Pilbara Line	Yes	✓	✓ ^a	✓	✓	-	-	-	-
Sea Cucumber	Yes	✓	✓	✓	✓	-	-	-	-
Shark Bay Beach Seine and Mesh Net	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Shark Bay Crabs	Yes	✓	✓ ^a	✓	✓	✓	-	-	✓
Shark Bay Prawn	Yes	✓	✓ ^a	✓	✓	✓	-	-	✓
Shark Bay Scallop	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
South Coast Crustacean	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
South Coast Estuarine	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
South Coast Open Access	Yes	✓	✓ ^a	✓	✓	-	-	-	-
South Coast Purse-Seine	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
South Coast Salmon	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
South West Beach Seine	Yes	✓	✓ ^a	✓	✓	-	-	-	-
South West Coast Salmon	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Southern Demersal Gillnet and Longline	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Warnbro Sound Crab	Yes	✓	✓ ^a	✓	✓	np	-	-	-
West Coast Deep Sea Crustacean	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
West Coast Demersal Scalefish	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
West Coast Demersal Gillnet and Longline	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
West Coast Estuarine	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
West Coast Purse Seine	Yes	✓	✓ ^a	✓	✓	✓	-	-	-

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
West Coast Rock Lobster	Yes	✓	✓	✓	✓	-	-	-	✓ ^b
Christmas Island Line Fishery	Yes	✓	✓ ^a	✓	✓	-	-	-	-
FBL condition 74 Fish Trapping	Yes	✓	✓ ^a	✓	✓	-	-	-	-
Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions	Yes	✓	✓ ^a	✓	✓	-	-	-	-
Trochus Fishery	Yes	✓	✓ ^a	✓	✓	✓	-	-	-
Albany/King George Sound Purse Seine	No	np	np ^a	np	np	-	-	-	-
Broome Prawn	No	-	-	-	-	✓	-	-	-
Cockburn Sound Crab	No	✓	✓ ^a	✓	✓	✓	-	-	-
Cockburn Sound (Fish Net)	No	np	np ^a	np	np	np	-	-	-
Cockburn Sound Mussel	No	-	-	-	-	np	-	-	-
Mandurah to Bunbury Developing Crab	No	np	np ^a	np	np	-	-	-	-
Marine Aquarium Fish (Corp and Individual)	No	-	-	-	-	✓	-	-	-
Northern Shark	No	-	-	-	-	-	-	-	-
North Coast Shark	No	-	-	-	-	-	-	-	-
Onslow Prawn	No	np	np ^a	np	np	✓	-	-	-
Peel-Harvey West Coast Crab	No	-	-	-	-	-	-	-	-
Pilbara Developmental Crab	No	np	np ^a	np	np	np	-	-	-
Pilbara Fish Trawl	No	np	np ^a	np	np	✓	-	-	-
Pilbara Trap	No	np	np ^a	np	np	✓	-	-	-
South Coast Trawl	No	-	-	-	-	-	-	-	-
South West Trawl	No	np	np ^a	np	np	np	-	-	-
Swan and Canning Rivers Crab	No	-	-	-	-	-	-	-	-
Temperate Demersal Shark Fishery	No	-	-	-	-	-	-	-	-
West Coast Beach Bait	No	np	np ^a	np	np	np	-	-	-
West Coast Beach Sea Crustacean	No	-	-	-	-	✓	-	-	-
West Coast Deep Sea Crab	No	-	-	-	-	-	-	-	-
Exmouth Gulf Beach Seine and Mesh Net Managed Fishery	No	np	np ^a	np	np	-	-	-	-
FBL condition 66 Cockburn Sound fish net	No	np	np ^a	np	np	-	-	-	-
Proportion of GVP (quality weighted)		100%	89%	100%	100%	22%	0%	0%	44%

^a Price data are published by WAPIRD on a species basis only. While catch by species by fishery is also available, much of this is confidential so fishery GVP cannot be calculated accurately.

^b The published cost structure is incomplete.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Western Australia Department of Primary Industries and personal communication (17/5/2019)

Management cost and licence fees

Licence fee data are collected by WAPIRD, and can be made available on request.

Western Australian fisheries do not operate on a full cost recovery basis. Management costs on a per fishery basis are not compiled or reported by WAPIRD.

Average costs per hour for management, enforcement and education, and research and assessment (for total WA fisheries) are publically available in the *WAPIRD Annual report* (WAPIRD 2018).

Cost of fishing

The management of the West Coast Rock Lobster Fishery is based on maximum economic yield requiring up to date economic information. Economic data have been collected recently for the Western Rock Lobster Council (ACIL Allen Consulting 2017). These data provide a recent, but high-level, business cost structure. For the NSCP, the high-level nature of the published cost structure necessitated combining the data with that of a matched fishery to estimate itemised expenditure.

A socio economic assessment of the Shark Bay Blue Swimmer Crab fishery was undertaken by WAPIRD (Daley and van Putten 2018). The study provides high-quality cost data for both trawl and trap sectors of the fishery and also includes a full cost structure for the Shark Bay Prawn fishery as a consequence.

6.3. Aquaculture data

Production

Production data are collected quarterly by WAPIRD for all aquaculture sectors. Annual production figures are reported in Gaughan and Santoro (2019).

Prices

GVP and price data are available in Gaughan and Santoro (2019) for all species other than Pearl Oysters where there are at least three active producers. GVP for Pearl Oysters is available from ABARES statistics (Mobsby 2018).

Number of active operators

The number of active operators is collected for all aquaculture sectors other than Pearl Oyster. The number of producers are only published if there are at least three.

Management cost and licence fees

Licence fee data are collected by WAPIRD in aggregate only and can be made available on request.

Western Australian aquaculture management does not operate on a full cost recovery basis. Management costs on a per sector basis are not compiled or reported by WAPIRD.

Cost of production

A preliminary feasibility assessment has been undertaken of edible Oyster aquaculture in the Pilbara and Gascoyne regions of Western Australia. The study provides cost data for 50-60,000 and 100,000 dozen per annum operations (AVC 2016a). Limitations to using this data in relation to Pearl Oyster aquaculture are noted, with the study's findings likely to be applicable to only one Black Pearl producer.

A separate study of the commercial feasibility of aquaculture in the Pilbara and Gascoyne regions was also undertaken (AVC 2016b). The study collected cost data for a generic marine finfish operation, with Yellowfin Tuna, Greater Amberjack and Mahi Mahi identified as specific species of interest.

Neither study provides appropriate cost structure data for a contribution assessment of existing aquaculture activity.

Table 6-18 Assessment of available aquaculture data, Western Australia

Aquaculture sector	Included in NSCP?	Available data					
		Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Barramundi	Yes	✓	✓	✓	-	-	-
Marron	Yes	✓	✓	✓	-	-	-
Mussels	Yes	✓	✓	✓	-	-	-
Yabbies	Yes	✓	✓	✓	-	-	-
Silver Perch	Yes	✓	✓	✓	-	-	-
Goldfish & Koi Carp	Yes	✓	✓	✓	-	-	-
Ornamental Invertebrates	Yes	✓	✓	✓	-	-	-
Ornamental Fish	Yes	✓	✓	✓	-	-	-
Rainbow Trout	Yes	✓	✓	✓	-	-	-
Pearl Oyster	Yes	-	✓ ^a	-	-	-	-
Other Species	Yes	✓	✓	✓	-	-	-
Proportion of GVP (quality weighted)		21%	60%	21%	0%	0%	0%

^a GVP is known but not production or price.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Western Australia Department of Primary Industries and personal communication (8/5/2019)

6.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 6-19 and aquaculture sectors in Table 6-20. Fisheries and aquaculture sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. Available data for some fisheries in Western Australia provide no basis for estimating GVP so these have also been excluded. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for Western Australia.

Table 6-19 Assessment of key data gaps and quality issues, Commercial Fisheries, Western Australia

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Shark Bay Prawn	-	Quality	-	-	-	Gap	Gap	-
West Coast Rock Lobster	-	-	-	-	Gap	Gap	Gap	Quality

Source: BDO EconSearch analysis

Table 6-20 Assessment of key data gaps and quality issues, Aquaculture, Western Australia

Aquaculture sector	Data Gaps and Quality Issues					
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Barramundi	-	-	-	Gap	Gap	Gap
Pearl Oyster	Gap	Quality	Gap	Gap	Gap	Gap

Source: BDO EconSearch analysis

6.5. Data matching schedules for WA fisheries and aquaculture

WA Aggregated Fishery	Like Fishery	Comments
Abalone	SA Abalone ^a	Selected based on gear usage (diver hand collection) and target species (Abalone)
Trawl	SA Spencer Gulf Prawn ^a	Selected based on gear usage (trawl)
Purse Seine	SA Sardine ^a	Selected based on gear usage and vessel characteristics (net fishing and larger boats)
Prawn	Shark Bay Prawn ^b	Selected based on gear usage (trawl) and product type (prawns); Shark Bay Prawn fishery represents approximately 60% of WA state fisheries prawn catch.
Blue Swimmer Crab	Shark Bay Crab ^b	Selected based on gear usage (pots) and target species (Blue Swimmer Crab); Shark Bay Crab fishery represents approximately 70% of Blue Swimmer Crab catch.
Demersal Net	SA Marine Scalefish (Net & Line) ^a	Selected based on gear usage and product type (net fishing and multi species)
Octopus	SA Rock Lobster Northern Zone ^a	Selected based on gear usage (traps) and target species (SANZRL fishery can fish for octopus)
Demersal Line	SA Marine Scalefish (Line) ^a	Selected based on gear usage and product type (line fishing and multi species)
Mud Crab	SA Blue Crab ^a	Selected based on gear usage (pots) and product type (crab)
Gillnet and Barramundi	SA Lakes and Coorong (Net Only) ^a	Selected based on gear usage and vessel characteristics (net fishing and smaller vessels)
Fresh Water	SA Lakes Coorong (Net Only) ^a	Selected based on environment (SA Lakes and Coorong fishery has some similarities to fresh water environments)
Aquarium	SA Abalone Fishery (boat associated costs removed) ^a	Selected based on catch method (hand collection of specimens)
Mackerel	SA Marine Scalefish (Line) ^a	Selected based on gear usage and product type (line fishing and finfish)
Demersal Trap	SA Rock Lobster Northern Zone ^a	Selected based on gear usage (traps) and product type (SANZRL fishery can fish for marine scalefish)
Shark	SA Marine Scalefish (Net & Line) ^a	Selected based on gear usage (gillnets) and product type (finfish including sharks)

Cont.

WA Aggregated Fishery	Like Fishery	Comments
Pearl Oyster	SA Abalone ^a	Selected based on gear usage (hand collection by divers) and product type (high value shellfish)
Sea Cucumber	SA Abalone Fishery (boat associated costs removed) ^a	Selected based on gear usage (hand collection by divers)
Scallop	SA Spencer Gulf Prawn ^a	Closest selection based on gear usage (demersal otter trawl)
Southern Rock Lobster	SA Rock Lobster Southern Zone ^a	Selected based on gear usage (pots) and product type (lobsters)
Crystal Crab	SA Rock Lobster Southern Zone ^a	Selected based on gear usage (pots in deepwater)
Western Rock Lobster	SA Rock Lobster Southern Zone ^{a,c}	Selected based on gear usage (pots) and target species (Lobster)
Trochus	SA Abalone Fishery (boat associated costs removed) ^a	Closest selection based on gear usage (hand collection)

^a Cost of fishing data sourced from BDO EconSearch (2019b,c,d,f,g,h,i,j)

^b Cost of fishing data sourced from Daley & Putten (2018)

^c Fishing cost estimates (fuel, labour, bait & ice, gear and repairs & maintenance) were adjusted in line with prior Western Rock Lobster study by ACIL Allen Consulting (2017)

Source: BDO EconSearch analysis

WA Aquaculture	Like Sector ^a	Comments
Barramundi	SA Fresh Water Finfish	Selected based on species produced (freshwater finfish)
Marron	SA Yabbies	Closest match from available data (freshwater crustaceans)
Mussels	SA Mussels	Selected based on species produced (mussels)
Yabbies	SA Yabbies	Selected based on species produced
Silver Perch	SA Fresh Water Finfish	Selected based on species produced (freshwater finfish)
Goldfish & Koi carp	SA Fresh Water Finfish	Selected based on species produced (freshwater finfish)
Ornamental Invertebrates	SA Oysters	Closest match from available data
Ornamental Fish	SA Marine Finfish	Closest match from available data
Rainbow Trout	SA Fresh Water Finfish	Selected based on species produced (freshwater finfish)
Other Species ^b	SA Marine Finfish	Selected based on species produced
Pearl Oyster	SA Oysters	Selected based on species farmed (oysters)

^a Cost of production data sourced from BDO EconSearch (2019)

^b Species in this category produced in the last ten years include artemia, abalone, black bream, groper, Mahi mahi, live rock, mulloway, Murray cod, pink snapper, prawns, rotifers, western rock oysters and yellowtail kingfish (DPIRD 2019)

Source: BDO EconSearch analysis

6.6. Data custodians

The data custodians identified are:

Fisheries and Aquaculture

Véronique Vanderklift (Research Data Manager)

Surveys, Assessments and Data Analyses (SADA)

Sustainability and Biosecurity

Department of Primary Industries and Regional Development

7. TASMANIA DATA SUMMARY (2017/18)

This section summarises the requisite data available for Tasmania for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for Tasmania's fisheries and aquaculture industries.

7.1. Tasmanian Fisheries and Aquaculture Data Availability

Tasmanian data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 7.2 and Table 7-21) and aquaculture (Section 7.3 and Table 7-22).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that *data item-fishery* cell when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

7.2. Fisheries data

Catch

Catch data are collected for all fisheries and available via Department of Primary Industries, Parks, Water and Environment (DPIPWE). Confidentiality issues may exist for minor fisheries with few active operators. Historic catch data may also be limited in minor fisheries.

Tasmanian fisheries confidentiality standards require either permission from licence holders or at least five active fishers for data to be made available.

Prices

Price data are collected through processor returns or landing dockets from fisheries. Price data are regularly updated and are available for the last ten years through DPIPWE. General "scorecard" data, including GVP, are available from AgriGrowth Tasmania (n.d.). GVP combined with production data implies an average prices for a fishery or aquaculture sector that can be used in a contributions analysis.

Table 7-21 Assessment of available fisheries data 2017/1018, Tasmania

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone	Yes	✓	✓	✓	✓	✓	np	np	✓
Commercial Dive	Yes	✓	✓	✓	✓	✓	np	np	-
Giant Crab	Yes	✓	✓	✓	✓	✓	np	np	-
Octopus	Yes	✓	✓	✓	✓	✓	np	np	-
Rock Lobster	Yes	✓	✓	✓	✓	✓	np	np	-
Scalefish	Yes	✓	✓	✓	✓	✓	np	np	-
Shellfish	Yes	✓	✓	✓	✓	✓	np	np	-
Scallop	Yes	✓	✓	✓	✓	✓	np	np	-
Marine Plant	No	✓	✓	-	-	-	np	np	-
Proportion of GVP (quality weighted)		100%	100%	99%	99%	99%	50%	50%	46%

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Institute for Marine and Antarctic Studies personal communication (20/5/2019)

Effort, active vessels and boat length

Effort and active vessels figures are collected and available through DPIPWE. Effort is also reported in Institute for Marine and Antarctic Studies (IMAS) fishery assessments. In addition to days fished, effort by fishery is provided in the following terms:

- Abalone: Hours fished
- Rock Lobster: Pot lifts
- Giant Crab: Pot days
- Octopus: Pot lifts
- Scallop: Hours fished
- Scalefish: Days fished by main gear type.

Boat length data for the Rock Lobster Fishery can be made available by IMAS. Boat length for other fisheries can be established using fishery licencing data and Australian Maritime Safety Authority data.

Management cost and licence fees

Licence fees and management costs are collected by DPIPWE but were not available for use at the time of the NSCP. Instead, they were approximated as 7 per cent of fishery GVP in the NSCP.

Cost of fishing

Knuckey and Sen (2017) reviewed Abalone dive rates in 2017. While this report is not primarily focused on economic contribution, it provides expenditure, employment, catch and GVP data for wild catch Abalone businesses in Tasmania. These data provide usable catch data and are a starting point for modelling the cost structure of businesses in this industry.

7.3. Aquaculture data

Production

Production data are collected quarterly by DPIPW for all aquaculture sectors and can be made available on request. Salmon and Ocean Trout production are collected separately by DPIPW, but confidentialised (into Salmonids) due to the limited number of operators (at least five required to publish data).

Prices

GVP data are collected by DPIPW for all aquaculture sectors and can be made available on request within confidentiality constraints. From GVP, average price data can be imputed.

Number of active operators

The number of active operators is collected by DPIPW for all aquaculture sectors and can be made available on request.

Management cost and licence fees

Licence fee data are collected by DPIPW and can be made available on request. Tasmanian licences fees are linked to aquaculture management costs. Levies are included in licencing and provide funding for specific management objectives. This includes levies for Tasmanian Seafood Industry Council membership, shellfish quality control, Salmon industry planning and Oyster research.

Table 7-22 Assessment of available aquaculture data, Tasmania

Aquaculture sector	Included in NSCP?	Available data					
		Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Abalone	Yes	✓	✓	✓	-	✓ ^a	-
Mussels	Yes	✓	✓	✓	-	✓ ^a	-
Oysters	Yes	✓	✓	✓	-	✓ ^a	-
Salmonids	Yes	✓	✓	✓	-	✓	✓
Seahorses	No	np	np	np	np	np	np
Proportion of GVP (quality weighted)		100%	100%	100%	0%	98%	97%

^a Within the last five years.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Tasmanian Department of Primary Industries, Parks, Water and Environment and personal communication (3/5/2019)

Cost of production

An economic contribution assessment of the Tasmanian aquaculture industry was undertaken by KPMG for the Tasmanian Salmonid Growers Association (KPMG 2015). The report presents employment, expenditure, production and GVP data for Salmonoid Aquaculture in Tasmania in 2013/14. While the production and GVP data may no longer be current, the expenditure and employment data are usable starting points for modelling the cost structure of businesses in the industry for use in contribution studies.

7.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 7-23 and aquaculture sectors in Table 7-24. Fisheries and aquaculture sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues.

Available data for some aquaculture sectors in Tasmania provide no basis for estimating GVP so have also been excluded. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for Tasmania.

Table 7-23 Assessment of key data gaps and quality issues, Commercial Fisheries, Tasmania

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Abalone	-	-	-	-	-	Quality	Quality	-
Rock Lobster	-	-	-	-	-	Quality	Quality	Gap

Source: BDO EconSearch analysis

Table 7-24 Assessment of key data gaps and quality issues, Aquaculture, Tasmania

Aquaculture sector	Data Gaps and Quality Issues						
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.	
Salmonids	-	-	-	Gap	-	-	

Source: BDO EconSearch analysis

7.5. Data matching schedules for TAS fisheries and aquaculture

Tas. Fishery	Like Fishery	Comments
Abalone	Tas Abalone ^a	Same fishery, i.e. no matching required
Commercial Dive	Tas Abalone ^a	Selected based on catch method (diver hand collection)
Giant Crab	SA Blue Crab ^b	Selected based on gear usage (pots) and product type (crab)
Octopus	SA Rock Lobster Northern Zone ^b	Selected based on gear usage (traps) and target species (SANZRL fishery can fish for octopus)
Rock Lobster	SA Rock Lobster Southern Zone ^b	Selected based on gear usage (pots) and target species
Scalefish	SA Marine Scalefish (Net & Line) ^b	Selected based on gear usage and target species (net fishing and scalefish)
Scallop	Excluded	Fishery closed in 2017/18
Shellfish	Tas Abalone ^a	Closest selection based on catch method (hand collection/diver hand collection)

^a Based on a previous study undertaken by EconSearch (2013) updated to reflect costs reported in the 2017 review of Tasmanian abalone dive rates (Knuckey and Sen 2017)

^b Cost of fishing data sourced from BDO EconSearch (2019b,c,f,g,h,i)

Source: BDO EconSearch analysis

Tas. Aquaculture	Like Sector	Comments
Abalone	SA Abalone ^a	Selected based on species produced
Mussels	SA Mussel ^a	Selected based on species produced
Oysters	SA Oysters ^a	Selected based on species produced
Salmonids	Tas Salmonids ^a	Same sector, i.e. no matching required

^a Cost of production data sourced from BDO EconSearch (2019I)

^b Cost of production data sourced from KPMG (2015)

Source: BDO EconSearch analysis

7.6. Data custodians

The data custodians identified are:

Fisheries

1) Malcolm Budd

Registrar, Fishing Licence Ownership and Interests.

Manager (Fisheries Compliance and Licensing)

Water and Marine Division, DPIPWE

2) Emily Ogier (Research Fellow)

Institute for Marine and Antarctic Studies (UTAS)

Aquaculture

Simon Cowling (Agricultural Analyst-Agricultural Development and Policy Branch)

AgriGrowth Tasmania (DPIPWE)

8. NORTHERN TERRITORY DATA SUMMARY (2017/18)

This section summarises the requisite data available for NT for economic contribution analyses of fisheries and aquaculture activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for NT's fisheries and aquaculture industries.

8.1. Northern Territory Fisheries and Aquaculture Data Availability

Northern Territory data currently available to prepare a fisheries and aquaculture contributions assessment, along with data gaps, are detailed in this section. The information is presented separately for fisheries (Section 8.2 and Table 8-25) and aquaculture (Section 8.3 and Table 8-26).

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that item-fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

8.2. Fisheries data

Catch

Catch data by species are collected for all fisheries by the Northern Territory Department of Primary Industries and Resources (NTDPIR), and can be made available via data request. Catch data for some fisheries are also published by NTDPIR in the *Status of Key Northern Territory Fish Stocks Report* (NTDPIR 2017).

Some fisheries are characterised by a low number of active licence holder and may need to be aggregated to access data. This aggregation can be problematic for modelling purposes as it groups dissimilar fishing methods and species caught. Northern Territory fisheries confidentiality standards require at least five active fishers per requested data.

Prices

Price data by species and fishery are collected by the NTDPIR and made available via data request. GVP data for some fisheries are also published by NTDPIR in the *Status of Key Northern Territory Fish Stocks Report* (NTDPIR 2017).

Effort, active vessels and boat length

Days fished and active licence data are collected in log book returns in all fisheries.

Linkages between fisheries and active vessel data (in the form of a list of registered licences per boat) and average active vessel length data are available from NTDPIR by data request.

Management cost and licence fees

Licence fee and management cost data are collected by NTDPIR and can be made available by fishery via data request.

Cost of fishing

Primary cost structure data are not available for the Northern Territory commercial fisheries.

Table 8-25 Assessment of available fisheries data, Northern Territory

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Coastal Line		✓	✓	✓	✓	✓	✓	✓	-
Coastal Net		✓	✓	✓	✓	✓	✓	✓	-
Spanish Mackerel		✓	✓	✓	✓	✓	✓	✓	-
Offshore Net and Line		✓	✓	✓	✓	✓	✓	✓	-
Demersal		✓	✓	✓	✓	✓	✓	✓	-
Barramundi		✓	✓	✓	✓	✓	✓	✓	-
Mud Crab		✓	✓	✓	✓	✓	✓	✓	-
Aquarium		✓ ^a	✓	✓	✓	✓	✓	✓	-
Timor Reef		✓	✓	✓	✓	✓	✓	✓	-
Trepang		✓	✓	✓	✓	✓	✓	✓	-
Development A14		✓	✓	✓	✓	✓	✓	✓	-
Proportion of GVP (quality weighted)		100%	100%	100%	100%	100%	100%	100%	0%

^a Only coral weight is known.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Northern Territory Department of Primary Industries and personal communication (27/5/2019)

8.3. Aquaculture data

Production

Production data are collected by NTPDIR for all aquaculture sectors but only available for Barramundi. Production is aggregated into a total figure for the other species due to the limited number of producers.

Prices

Price data are collected by NTDPIR for all aquaculture sectors. The figures allow NTDPIR to report GVP to ABARES. GVP is aggregated into Barramundi and a total of all other species due to the limited number of producers in the jurisdiction.

Number of active operators

The number of active operators is not available for all aquaculture sectors.

Table 8-26 Assessment of available aquaculture data, Northern Territory

Aquaculture sector	Included in NSCP?	Available data					
		Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Barramundi	Yes	✓	✓	-	-	-	-
Pearl Oysters	Yes	np	✓ ^a	-	-	-	-
Aquarium	Yes	np	✓ ^a	-	-	-	-
Algea	No	np	✓ ^a	-	-	-	-
Proportion of GVP (quality weighted)		95%	95%	0%	0%	0%	0%

^a Within the last five years.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: Northern Territory Department of Primary Industries personal communication (27/5/2019)

Management cost and licence fees

Licence fee data are not available for all aquaculture sectors.

Management of Northern Territory aquaculture is not on a cost recovery basis. Management costs on a per sector basis are not collected by NTDPIR.

Cost of production

Primary cost structure data are not available for the Northern Territory aquaculture sectors.

8.4. Data gaps

Key data gaps are identified for commercial fisheries in Table 8-27 and aquaculture sectors in Table 8-28. Fisheries and aquaculture sectors are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. Available data for some fisheries in Northern Territory provide no basis for estimating GVP so have also been excluded. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above tables for Northern Territory.

Table 8-27 Assessment of key data gaps and quality issues, Commercial Fisheries, Northern Territory

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Spanish Mackerel	-	-	-	-	-	-	-	Gap
Offshore Net and Line	-	-	-	-	-	-	-	Gap
Demersal	-	-	-	-	-	-	-	Gap
Barramundi	-	-	-	-	-	-	-	Gap
Mud Crab	-	-	-	-	-	-	-	Gap
Timor Reef	-	-	-	-	-	-	-	Gap

Source: BDO EconSearch analysis

Table 8-28 Assessment of key data gaps and quality issues, Aquaculture, Northern Territory

Aquaculture sector	Data Gaps and Quality Issues					
	Prod.	Price	Active operators	Mgmt. costs	Licence fees	Cost of prod.
Barramundi	-	-	Gap	Gap	Gap	Gap
Pearl Oysters	Quality	Quality	Gap	Gap	Gap	Gap

Source: BDO EconSearch analysis

8.5. Data matching schedules for NT fisheries and aquaculture

NT Fishery	Like Fishery	Comments
A1 Coastal Line	SA Marine Scalefish Fishery (line only) ^a	Selected based on gear usage and target species (line fishing and multi species)
A2 Coastal Net	SA Marine Scalefish Fishery (net & line) ^a	Selected based on gear usage and target species (net fishing and multi species)
A4 Spanish Mackerel	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector) ^b	Selected based on gear (moving baited line) and target species (scalefish)
A5 Offshore Net & Line	SA Marine Scalefish Fishery (net & line) ^a	Selected based on gear usage and target species (net fishing and multi species)
A6 Demersal	Southern & Eastern Scalefish & Shark (Trawl Sector) ^b	Selected based on gear usage (trawl) and target species (scalefish)
A7 Barramundi	SA Marine Scalefish Fishery (net & line) ^a	Selected based on gear usage and target species (net fishing and scalefish target)
A8 Mud Crab	SA Blue Crab ^a	Selected based on gear usage and target species
A12 Aquarium	SA Abalone Fishery (boat associated costs removed) ^a	Diving and collection by hand exhibit similarities with Abalone fishing
A13 Trepang	SA Abalone Fishery (boat associated costs removed) ^a	Collection by hand exhibit similarities with Abalone fishing
A18 Timor Reef	SA Rock Lobster Fishery (Northern Zone) ^a	Selected based on gear usage (lobster traps are similar to fish traps) and scalefish endorsement is included in SA fishery

^a Cost of fishing data sourced from BDO EconSearch (2019c,f,g,h)

^b Cost of fishing data sourced from Bath et al. (2018)

Source: BDO EconSearch analysis

NT Aquaculture	Like Sector ^a	Comments
Barramundi	SA Fresh Water Finfish	Selected based on species produced (freshwater finfish)
Pearls Oyster	SA Oyster	Closest match from available data (oysters)
Aquarium	SA Marine Finfish	(marine finfish) Selected based on species produced

^a Cost of production data sourced from BDO EconSearch (2019I)

Source: BDO EconSearch analysis

8.6. Data custodians

The data custodians identified are:

Fisheries and Aquaculture

Fisheries Licencing

Fisheries Division of the Department of Primary Industry and Resources

FisheriesLicensing@nt.gov.au

9. COMMONWEALTH DATA SUMMARY (2017/18)

This section summarises the requisite data available for the Commonwealth for economic contribution analyses of fisheries activity for the 2017/18 financial year. Data gaps and custodians are identified as of September 2019. It also includes the data matching schedule used in constructing the 2017/18 estimates for Commonwealth-managed fisheries.

9.1. Commonwealth Fisheries Data Availability

Commonwealth fisheries data currently available to prepare a fisheries contributions assessment, along with data gaps, are detailed in this section. The information is presented for fisheries only (Section 9.2 and Table 9-29) as the Commonwealth does not have the responsibility of managing commercial aquaculture activity.

The bottom row of each table shows an estimate of the proportion of GVP for which the relevant data are available, weighted by quality. If significant concerns about data quality were communicated to BDO EconSearch along with the data, or identified by BDO EconSearch during the NSCP, then a footnote is included and a weight of 0.5 is applied to that item-fishery when calculating the 'Proportion of GVP' estimate. A low proportion signals that a data item is a key data gap for the jurisdiction.

9.2. Fisheries data

Catch

Catch data are collected by species for all fisheries and are available in ABARES *Australian Fishery and Aquaculture Statistics* reports (Mobsby 2018). Confidentiality issues exist where the number of active fishers are low so many small fisheries are aggregated. AFMA confidentiality standards require at least five active fishers per requested data.

Prices

GVP data are collected for all Commonwealth managed fisheries and are available in Mobsby (2018). These data imply average price at a fishery level when combined with catch data. Confidentiality issues exist where the number of active fishers are low so many small fisheries are aggregated. Price data are derived from various sources, including fishers, seafood markets and seafood buyers and processors.

Effort, active vessels and boat length

Days fished and active vessels are collected in log book returns in all fisheries and are available in *Fishery Status Reports* (Patterson et. al. 2019). Similar to catch data, the confidentiality requirement of five active fishers applies.

Boat length data are not available. AFMA's list of concession holders and conditions includes some vessel data but not boat length.

Management cost and licence fees

ABARES provides fishery management costs data for most fisheries in *Fishery Status Reports* (Patterson et. al. 2019).

Licence fee data are not available.

Table 9-29 Assessment of available fisheries data, Commonwealth fisheries

Fishery	Included in NSCP?	Available data							
		Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Bass Strait Central Zone Scallop	Yes	✓	✓	✓	✓	-	✓	-	✓ ^a
Coral Seas	Yes	✓	np	✓	✓	-	✓	-	-
Eastern Tuna and Billfish	Yes	✓	✓	✓	✓	-	✓	-	✓
Heard Island and McDonald Island	Yes	✓	np	✓	✓	-	✓	-	-
Macquarie Island Toothfish	Yes	✓	np	✓	✓	-	✓	-	-
North West Slope Trawl	Yes	✓	np	✓	✓	-	✓	-	-
Northern Prawn	Yes	✓	✓	✓	✓	-	✓	-	✓
Small Pelagic	Yes	✓	np	✓	✓	-	✓	-	-
Southern Bluefin Tuna - longline	Yes	✓	✓	✓	✓	-	✓	-	-
Southern Bluefin Tuna - purse seine	Yes	✓	✓	✓	✓	-	✓	-	-
Southern and Eastern Scalefish and Shark (Commonwealth Trawl Sector)	Yes	✓	✓	✓	✓	-	✓	-	✓
Southern and Eastern Scalefish and Shark (Great Australian Bight Trawl Sector)	Yes	✓	✓	✓	✓	-	✓	-	-
Southern and Eastern Scalefish and Shark (Gillnet Hook and Trap Sector)	Yes	✓	✓	✓	✓	-	✓	-	✓
Southern Squid Jig	Yes	✓	✓	✓	✓	-	✓	-	-
Torres Strait Finfish	Yes	✓	✓	✓	np	-	-	-	-
Torres Strait Prawn	Yes	✓	✓	✓	✓	-	✓	-	✓ ^b
Torres Strait Rock Lobster	Yes	✓	✓	✓	✓	-	-	-	-
Torres Strait Spanish Mackerel	Yes	✓	✓	✓	np	-	-	-	-
Western Deepwater Trawl	Yes	✓	np	✓	✓	-	✓	-	-
Western Tuna Billfish	Yes	✓	np	✓	✓	-	✓	-	-
Christmas Island and Cocos (Keeling) Islands	No	✓	✓	✓	✓	-	-	-	-
Norfolk Island	No	✓	✓	✓	✓	-	-	-	-
South Tasman Rise Trawl	No	✓	✓	✓	✓	-	-	-	-
Western Skipjack	No	✓	✓	✓	✓	-	✓	-	-
East Coast Deepwater Trawl	No	✓	✓	✓	✓	-	✓	-	-
Torres Strait Bêche-de-mer	No	✓	np	✓	✓	-	-	-	-
Torres Strait Trochus	No	✓	np	✓	✓	-	-	-	-
Eastern Skipjack	No	✓	✓	✓	✓	-	✓	-	-
Proportion of GVP (quality weighted)		100%	88%	100%	100%	0%	97%	0%	58%

^a Costs are from 2010/11.

^b Costs are from 2011/12.

Key: ✓ = data available, np = data collected but not published, - = no data collected.

Source: ABARES personal communication (11/7/18)

Cost of fishing

ABARES has produced economic indicator reports, with detailed cost data, for the following fisheries:

- Southern and Eastern Scalefish and Shark Fishery (Bath et al. 2018)
- Eastern Tuna and Billfish Fishery (Mobsby and Bath 2018)
- Northern Prawn Fishery (Mobsby et. al. 2019)
- Torres Strait Prawn Fishery (Skirtun et al. 2015)
- Bass Strait Central Zone Scallop Fishery (George et. al. 2012)

The Northern Prawn Fishers Association annually provide a fishery data summary which has comprehensive data, including some costs and others that could be used to impute costs (Laird 2019).

9.3. Data gaps

Key data gaps are identified for Commonwealth commercial fisheries in Table 9-30. Fisheries are only listed if a gap or quality issue exists and their estimated contribution to GVP is greater than 5 per cent of the jurisdiction total, reducing the scope to 'key' issues. For the purpose of this summary, a data gap is where a data item has not been collected ('Gap') or there is a quality concern ('Quality') with collected data. Confidential data are also labelled as having a quality concern ('Quality'). Quality issues are described in footnotes to the above table.

Table 9-30 Assessment of key data gaps and quality issues, Commonwealth Commercial Fisheries

Fishery	Data Gaps and Quality Issues							
	Catch	Price	Effort	Active vessels	Boat length	Mgmt. costs	Licence fees	Cost of fishing
Eastern Tuna and Billfish	-	-	-	-	Gap	-	Gap	-
Heard Island and McDonald Island	-	Quality	-	-	Gap	-	Gap	Gap
Northern Prawn	-	-	-	-	Gap	-	Gap	-
Small Pelagic	-	Quality	-	-	Gap	-	Gap	Gap
Southern Bluefin Tuna - longline	-	-	-	-	Gap	-	Gap	Gap
Southern and Eastern Scalefish and Shark (Commonwealth Trawl Sector)	-	-	-	-	Gap	-	Gap	-
Southern and Eastern Scalefish and Shark (Gillnet Hook and Trap Sector)	-	-	-	-	Gap	-	Gap	-

Source: BDO EconSearch analysis

9.5. Data matching schedules for Commonwealth fisheries

Commonwealth Fishery	Like Fishery ^a	Comments
Bass Strait Central Zone Scallop	Bass Strait Central Zone Scallop ^a	Same fishery, i.e. no matching required
Coral Seas	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Selected based on gear (8 of 16 fishing permits were for line and trap sectors)
Eastern Tuna & Billfish	Eastern Tuna & Billfish	Same fishery, i.e. no matching required
Heard Island & McDonald Island	Excluded	Primary landing ports are outside of Australia
Macquarie Island Toothfish	Excluded	Negligible catch attributable to jurisdictions within Australia
North West Slope Trawl	Northern Prawn	Selected based on gear usage (bottom trawl) and product type (prawns)
Northern Prawn	Northern Prawn	Same fishery, i.e. no matching required
Small Pelagic	Southern & Eastern Scalefish & Shark (Trawl Sector)	Selected based on gear type (trawl, seine) and target species (scalefish)
Southern Bluefin Tuna - longline	Eastern Tuna & Billfish	Selected based on gear (lines) and target species (tuna)
Southern Bluefin Tuna - purse seine	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Selected based on gear usage (nets)
Southern & Eastern Scalefish & Shark (Trawl Sector)	Southern & Eastern Scalefish & Shark (Trawl Sector)	Same fishery, i.e. no matching required
Southern & Eastern Scalefish & Shark (Great Australian Bight Trawl Sector)	Southern & Eastern Scalefish & Shark (Trawl Sector)	Selected based on gear usage (trawl) and target species (scalefish)
Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Same fishery, i.e. no matching required
Southern Squid Jig	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Selected based on gear usage (hooks)
South Tasman Rise Trawl	Excluded	Fishery closed in 2017/18

Cont.

Commonwealth Fishery	Like Fishery ^a	Comments
Torres Strait Finfish	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Selected based on gear (hooked lines) and target species (scalefish)
Torres Strait Prawn	Torres Strait Prawn	Same fishery, i.e. no matching required
Torres Strait Rock Lobster	SA Abalone	Selected based on gear usage (diver hand collection)
Torres Strait Spanish Mackerel	Southern & Eastern Scalefish & Shark (Gillnet Hook & Trap Sector)	Selected based on gear (moving baited line) and target species (scalefish)
Western Deepwater Trawl	Southern & Eastern Scalefish & Shark (Trawl Sector)	Selected based on gear usage (trawl)
Western Tuna & Billfish	Eastern Tuna & Billfish	Selected based on gear (lines) and similar target species (tuna & billfish)

^a Cost of fishing data sourced from Mobsby and Bath (2018, Eastern Tuna and Billfish), Mobsby et al. 2019, Northern Prawn), Bath et al. 2018, Southern and Eastern Scalefish and Shark), Skirtun et al. 2015, Torres Strait Prawn), George et al. (2012, Bass Strait Central Scallop) and BDO EconSearch (2019c)

Source: BDO EconSearch analysis

9.6. Data custodians

The data custodians identified are:

Fisheries

Department of Agriculture General Enquiries

<http://www.agriculture.gov.au/general-inquiries?query=abares> (Subject: ABARES)

Australian Bureau of Agriculture and Resource Economics and Sciences, Fisheries

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- BDO EconSearch 2019e (in press) (and previous reports), *Economic Indicators for the SA Charter Boat Fishery 2017/18*, report prepared for PIRSA, Adelaide, July.
- BDO EconSearch 2019f (in press) (and previous reports), *Economic Indicators for the South Australian Blue Crab Fishery 2017/18*, report prepared for PIRSA, Adelaide, July.
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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

APPENDIX 1 Document History and Status

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3	Final	Sarah Jennings Emily Ogier	1 Word 1 PDF	-	23/10/2019	JBM	JBM
4	Final (rev1)	Sarah Jennings Emily Ogier	1 Word 1 PDF	-	17/12/2019	JBM	JBM
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