Fisheries

In 2008–09, the total GVP of Queensland's fisheries is forecast at $333 million, 3% lower than 2007–08. This includes a forecast of $101 million for trawl fishery, $147 million for non-trawl and $85 for aquaculture.

Forecast for wild-harvest commercial fisheries

The GVP of commercial fisheries harvested in 2008–09 from Queensland waters, including Commonwealth-managed and Queensland-managed fisheries, is forecast at $248 million. This is about 6% lower than the estimated GVP for 2007–08 of $265 million.

- The GVP of Queensland-managed fisheries is forecast at approximately $170 million, a decline of about 7% compared to the estimated GVP for 2007–08 of $182 million. The trawl sector showed the greatest change with a decline of about 13% compared to 2007–08, while the non-trawl sector remained about the same.
- The GVP of Commonwealth-managed fisheries is forecast at $78 million.

Overview

This continued decline in the GVP (and level of harvest) is the result of four factors:

1. declining terms of trade for fishing businesses (especially in the trawl sector)
2. difficulties in obtaining and retaining skilled labour in all sectors
3. access arrangements in a range of fisheries
4. a strong Australian dollar, which reduces both export and import prices of seafood.

The effect of these four factors has caused some of the commercial fishing sectors to have little confidence in the future compared to previous years.

The species price series implemented in July 2006, in conjunction with the Queensland Seafood Marketers Association, continues. The organisation provides 'typical' prices paid to commercial fishers at wharf for key species (by grade) for each quarter by region. Most of the other prices used for the 470 species landed have remained relatively consistent in 2007–08.

Price increases for the products harvested will depend on the changes in the Australian dollar, particularly when compared with the US dollar and the level of imports of fisheries products.

Wild-harvest fisheries

Trawl fishery

This section only considers the east coast trawl fishery managed by Queensland, which stretches from Cape York to the New South Wales border.

It is expected that the trawl harvest in 2008–09 will continue to decline as boat numbers reduce. Since 2004–05, boat numbers have declined from about 450 active trawlers to 300 active trawlers in 2008–09. This is a decline of about 35% in the trawl fleet. At the same time, fishing effort (measured as days fished) declined by almost 60% and harvest declined by slightly more than 40%.

It is estimated that the trawl sector will harvest about 5600 tonnes of product with a GVP of about $64 million in 2008–09. This is a decline of about 13% compared to 2007–08.

Prices being offered for the various species of prawn have not changed in the last few years, and for some species prices have declined slightly. A good banana prawn harvest in the Gulf of Carpentaria, as well as the base price provided by prawn imports into Australia, has limited the potential for an increase in prawn prices being offered to fishers.

Scallop harvest in 2008–09 is forecast to be about the same as the 2007–08 year. As with the other sectors, scallop imports into Australia are holding down the price being offered to fishers. The high Australian dollar has also affected scallop export prices.

While the prawn harvest has declined, recent studies indicate that, from a biological perspective, the stocks of 'trawl' species are in robust health and are harvested at a sustainable level.

Line-caught species

Most of the line fishing in Queensland is based on the Great Barrier Reef and is known as the 'reef line fishery'. A second and much smaller fishery, the 'rocky reef fishery' south of the Great Barrier Reef, produces less than 10% of the reef line fishery harvest and will not be considered here.

Compared to the other sectors, line fish harvest is expected to maintain its present level of about 2800 tonnes, with an estimated GVP of about $45 million.

The coral trout quota is expected to be filled in 2008–09. This is one part of the line fishing sector where the price being offered for live fish encourages their harvest. Most of Queensland's coral trout harvest is exported, with live fish trade the main focus. Compared with other reef species, coral trout are a very high value fish (especially live fish), with fishers being paid 7–9 times the price of other species harvested.

Catches of other reef species, such as Spanish mackerel and red-throat emperor and fish grouped in the 'other reef species' category, are more seriously affected by economic and other factors currently operating in the reef line sector. Given the prices currently being offered, the likelihood of filling these quotas in 2008–09 is low (although more interest in Spanish mackerel harvest at this stage). Typically, the level of harvest is about one third of the available quota. Fishers report that fish are available for harvest whenever prices improve.

These 'other reef species' are almost completely targeted for the domestic market. The domestic market requires most of the product to be in fillet form, which places it in direct competition with imports of similar product from overseas. Given the labour intensity of filleting, domestic operators work at a cost disadvantage when compared with most overseas competitors.

The strong Australian dollar creates opportunities for competitors to develop niche live fish markets overseas and import finfish into Australia. This competition reduces prices offered to domestic fishers and forces the processors to present the Australian product in a convenient fillet form in order to compete with the overseas product.

Net-caught species

In 2008–09, production from the Queensland net fishery is expected to be about 5500 tonnes with a forecast GVP of $26 million—a decline of about 4% compared to the estimated GVP of $27 million for 2007–08. At this stage, production seems to have stabilised at this level.

However, compared to the mean for the three years of 2004–05 to 2006–07, production has declined by about 20%. This represents a fall of about 550 tonnes each year during this period. Given there was minimal price increases offered to fishers compared to previous years, GVP also declined by about 20%. This was mainly due to a decrease in active boats and a reduction in the number of days fished per boat.

Most of Queensland's net-caught product is destined for the local and wider Australian market. Imports of finfish from Africa, South-East Asia, US and Europe limit the price offered to fishers for locally caught fish. Also, imports of 'white' fish fillet into Australia set a base price for locally caught product from the net fishery, as consumers substitute imports for local product when the price is lower. The need to present local product in fillet form also adds to costs and limits the potential to increase the price paid for Queensland-caught fish.

As stated previously, the reduction in harvest of net-caught species cannot be interpreted as a decline in fish stocks. Recent studies indicate that, from a biological perspective, most of the species harvested by net fishers are in robust health and are being harvested at a sustainable level.

Earlier comments about the effect of the strong Australian dollar, fuel prices and access to labour apply equally in these fisheries. In addition, significant areas important for the netting of fish have been closed to fishing under various management arrangements.

Pot-caught species

The GVP of the commercial harvest of mud crab and blue swimmer crab harvest in 2008–09 is expected to decline by about 12% compared to 2007–08. This is mainly due to an expected 12% reduction in harvest (the increase in price from the previous year is expected to be maintained).

The decline in level of harvest is due to the reduction in the number of boats harvesting these crabs and a reduction in the number of days fished per boat. Mean daily catch per boat remained the same.

Most mud and blue swimmer crabs are sold on the Australian market. There appears to be no direct competition from imports into Australia.

The spanner crab fishery is a quota-managed fishery. It is expected to fill about 1500 tonnes of the quota in 2008–09, the same level as in the previous year.

Most of Queensland's spanner crabs are exported. This fishery generally produces within the available quota, driven by the price paid for the product overseas.

Aquaculture

Forecast

The GVP of aquaculture is forecast at $85 million in 2008–09, 6% higher than 2007–08 and 13% higher than 2006–07.

The 2007–08 and 2006–07 estimates have been revised to $80 million and $75 million, respectively.

Discussion

The 2007–08 estimate has been revised down as a result of cooler water temperatures reducing marine prawn production. Size grades were down, particularly in southern Queensland, which has reduced tonnage estimates to 3100 tonnes (a similar figure to 2006–07). Prices have firmed slightly, which increased the value of this sector from $42.5 million in 2007–08 to a forecast value of $50 million in 2008–09. Production is expected to increase from 3100 tonnes in 2007–08 to 3600 tonnes in 2008–09.

Barramundi production is expected to remain at levels and prices similar to those published in the March 2008 edition of *Prospects update*. Production in 2007–08 is estimated at 2400 tonnes (up 16% on the previous year) while the value is estimated at $24 million (a 30% increase). In 2008–09, production is forecast to reach 2500 tonnes with a value of $24 million.

All other sectors are expected to remain similar to the 2006–07 estimates.

Special feature: fisheries in context

In 2006–07, total fisheries production of seafood for Australia was approximately 240 000 tonnes, with an overall GVP of $2.18 billion (these figures include wild-harvest and aquaculture production). Around 20% (48 000 tonnes) of fisheries harvest was exported, with a value of $1.16 billion. At the same time 199 000 tonnes of fisheries product was imported, with an import cost of $1.19 billion. This results in a slightly negative balance of payments from the fisheries seafood sector. These figures indicate that Australia imported, in terms of weight, the equivalent of 83% of what it produced domestically.

Seafood consumption in Australia is calculated by subtracting the level of exports from total domestic production and then adding the figure for imports. Total seafood consumption was estimated to be approximately 391 000 tonnes. As Australia has a population of roughly 21 million people, apparent consumption of seafood is calculated at 18.60 kg/person for 2006–07.

It is also important to acknowledge the value of both non-edible exports and imports (such as pearls and fishmeal). Although production quantities cannot be obtained, the value of non-edible exports was listed at $336 million, while the value of non-edible imports was $283 million. Taking these figures into account, Australia had a positive balance of payments, exporting more fisheries product than it imported.

From a Queensland perspective, total domestic production in 2006–07 was estimated to be 40 400 tonnes, which was approximately 17% of total domestic production in Australia. The total value of the state's production was almost $346 million, which was a contribution of roughly 16% to overall national value. Of the 48 000 tonnes of fisheries product exported by Australia, Queensland exported roughly 11 600 tonnes (24%), which produced a total state export value of $191 million (17%). Import levels and value of imports were not available from a state perspective.

Prawns

Table 5 below highlights prawn production for 2006–07. Prawns were responsible for about 9% of Australia's domestic fisheries production, and just over 12% of the total value. While over 30% of domestic prawns harvested were exported, imports were more than one and a half times Australia's prawn harvest. This indicates that 70% of the prawns consumed in Australia for 2006–07, roughly 2.3 kg/person, were imported.

Queensland was responsible for just over half of domestic production and exports for prawns.

Table 5. Prawn data

	Unit	2006–07 Australian totals	2006–07 Queensland totals	Queensland contribution (%)
Prawns				
Production [a s]	kt	20.6	11.2	54
Value of production	$m	265.1	133.4	50
Exports [b]	kt	6.4	3.6	56
Value of exports	$m	93.6	56.3	60
Imports [b]	kt	33.9	n/a	n/a
Value of imports	$m	308	n/a	n/a
Consumed in Australia	kt	48.1	n/a	n/a
Apparent consumption	kg/ person	2.3	n/a	n/a

[a] Live weight. [b] Product weight. [s] Includes estimates from aquaculture. [n/a] Not available.

'Other' finfish (including salmon and excluding tuna)

'Other' finfish accounted for about 60% of total domestic production and provided just over 30% of the total value of seafood. By weight, Australia imports almost more than eight times the amount of finfish products than it exports. However, this high level of imports means that other finfish consumption in Australia was around 56% of total fisheries consumption for 2006–07, at an average of 10.4 kg/person (Table 6).

Queensland produced only 11% of total domestic 'other' finfish production (contributing a value of production of 17%), yet was responsible for 26% of total 'other' finfish exports, which contributed just over 40% to the total value of export production. The reason for this can be attributed to the price received for coral trout, a high-value species in domestic and foreign markets. The Queensland export and value of export figures had to be estimated using previous data as there was no specific current data that could have been included.

Table 6. Other finfish (including salmon) data

Other finfish (including salmon)	Unit	2006–07 Australian totals	2006–07 Queensland totals	Queensland contribution (%)
Production [a s]	kt	144.4	16.4	11
Value of production	$m	688.2	116.4	17
Exports [b]	kt	11.4	3.0[e]	26
Value of exports	$m	118.2	48.3[e]	41
Imports [b]	kt	85.8	n/a	n/a
Value of imports	$m	457.0	n/a	n/a
Consumed in Australia	kt	218.8	n/a	n/a
Apparent consumption	kg/ person	10.42	n/a	n/a

[a] Live weight. [b] Product weight. [s] Includes estimates of aquaculture. [n/a] Not available. [e] Estimate.

Crabs

Crabs are only a minor species harvested in Australian waters, contributing just over 2% to the level of domestic fisheries production and 2% of the total value of production for 2006–07. Australia exported slightly more crabs than it imported and consumed around 5500 tonnes, which is only an apparent consumption of 0.26 kg/person (Table 7).

However, crabs remain an important harvest species in Queensland, which was responsible for just over half of both total domestic production and value of production. Furthermore, Queensland exported almost 80% of all crabs harvested in the 2006–07 year, although it only contributed 58% of overall value, implying that prices in Queensland were lower than the overall price average.

Table 7. Crab data

Crabs	Unit	2006–07 Australian totals	2006–07 Queensland totals	Queensland contribution (%)
Production [a s]	kt	5.8	3.1	53
Value of production	$m	52.4	26.7	51
Exports [b]	kt	1.4	1.1	79
Value of exports	$m	17.5	10.1	58
Imports [b]	kt	1.1	n/a	n/a
Value of imports	$m	8.8	n/a	n/a
Consumed in Australia	kt	5.5	n/a	n/a
Apparent consumption	kg/ person	0.26	n/a	n/a

[a] Live weight. [b] Product weight. [s] Includes estimates of aquaculture. [n/a] Not available.

Scallops

Scallops were responsible for approximately 4% of total domestic fisheries production, yet only contributed just over 1% in terms of value of production. Australia imported almost double the amount of scallops that it exported, yet still managed to maintain a positive balance of payments. Consumption was calculated to be 11 700 tonnes for 2006–07, which is the equivalent of 0.56 kg/person (Table 8).

Queensland contributed around 30% of total domestic scallop production, and was responsible for around 41% of the total value of production. Furthermore, while Queensland only exported around 1% of total scallop exports, it contributed around 5% of total export value, indicating that prices for Queensland scallop exports are higher on average.

Table 8. Scallop data

Scallops	Unit	2006-07 Australian totals	2006-07 Queensland totals	Queensland contribution (%)
Production [a]	kt	10.4	3.3	32
Value of production	$m	28.3	11.7	41
Exports [b]	kt	1.4	0.02	1
Value of exports	$m	35.4	1.8	5
Imports [b]	kt	2.7	n/a	n/a
Value of Imports	$m	29.8	n/a	n/a
Consumed in Australia	kt	11.7	n/a	n/a
Apparent consumption	kg/ person	0.56	n/a	n/a

[a] Live weight. [b] Product weight. [s] Includes estimates of aquaculture. [n/a] Not available.

Fish with a future

Farming high-value tropical reef fish

A sumptuous Chinese banquet, with crispy-skin whole fish as its centrepiece, is the culmination of more than eight years of research for Cairns-based aquaculture scientists from the Department of Primary Industries and Fisheries (DPI&F).

In a Queensland fish-breeding breakthrough, DPI&F has sold its first consignment of pond-reared flowery cod to southern markets—delighting chefs at upmarket Chinese restaurants in Sydney and whetting their appetites for more.

Flowery cod, also known as tiger grouper, is a difficult species to breed in captivity. For DPI&F principal scientist Dr Richard Knuckey and his research team, every stage in the process has meant the development of new technology.

'Through our involvement with an Australian Centre for International Agricultural Research project in South-East Asia, we got some idea of how the fishery worked, as well as the high level of demand for the product.'

'But applying it to Queensland conditions has been a gradual process, from encouraging broodstock to spawn, to larval rearing and then finally introducing the fingerlings to ponds for growout at appropriate stocking rates', Dr Knuckey said.

DPI&F hopes to firmly establish the flowery cod as part of Queensland's aquaculture industry. The next stage for the development of this new industry is to supply fingerlings to a commercial aquaculture enterprise where, with good hygiene practices, flowery cod can be kept in ponds with other species such as barramundi and prawns.

Market research indicates that there are assured markets in Hong Kong, and the development of a flowery-cod industry would give aquaculturalist the opportunity to diversify their product and explore new markets, especially in other parts of Asia. Market analysis has also revealed the optimum size for the fish—information that allows the research team to estimate the amount of time that fish need to be kept in growout facilities.

The research team is also studying other high-value species to assess their suitability for aquaculture breeding. Of particular interest are coral trout and the Queensland grouper, a rare protected species that can grow to weigh an astonishing three kilograms within its first year.

Forestry

Forecast

The GVP of Queensland's forest industry in 2008–09 is forecast at $185 million, the same as DPI&F's revised forecast for 2007–08.

Readers should note that ABARE recently revised their estimates for forest growing activity in Queensland, and these revisions have impacted on the forest industry data reported in *Prospects*.

DPI&F have also moderated the estimated growth in the forest growing sector in 2007–08 (down from 5% to 2%) as a result of the downturn in a number of key demand drivers for forest products in Queensland throughout the second half of 2007–08.

The first-round processing sector of the Queensland forest industry (refer to box at the end of this section for definition) is forecast to contribute $319 million (in value-added terms) in 2008–09 to the Queensland economy. This means that the 'forest industry' (forest growing and first-round processing sectors) is estimated to contribute just over $500 million to the Queensland economy in 2008–09.

Discussion

Residential building activity (new homes and renovations) is the main driver of the demand for forest products in Queensland, given that local forest resources are predominantly sawn for structural products. In the second half of 2007–08 the Queensland property market experienced softening demand. This was driven by rising interest rates, increasing consumer pessimism about economic conditions (as a result of the 'sub-prime' mortgage market failure in the US), downturns in the local share market and increasing inflationary pressures experienced across Australia since the end of 2007.

Queensland Treasury's Office of Economic and Social Research (OESR) estimates that dwelling investment fell by 5.5% in 2007–08. Furthermore, dwelling approvals in Queensland declined in each month between November 2007 and June 2008 (trend data). These results follow strong sustained growth of more than 90% in dwelling investment in Queensland in the period between 2000–01 and 2006–07.

Looking ahead, OESR predicts that there is limited potential for a significant recovery in dwelling investment in the near term. At the time of writing in August 2008, interest rates were at their highest levels since July 1996, inflationary pressures continue to impact on both businesses and consumers, and consumers remain pessimistic about general economic conditions. Consequently, OESR forecasts that new dwelling investment in Queensland will grow by only 0.5% in 2008–09.

Forestry Plantations Queensland (FPQ) was created as a statutory body (Corporation Sole) in May 2006 by the *Forestry Plantations Queensland Act 2006* as part of a number of reforms to the commercial management of Queensland's state-owned forest resources. FPQ is Queensland's principal forest grower, accounting for around 70% of the domestically produced log timber used each year by Queensland's forest industry. It sold in excess of 2 million cubic metres of log timber during 2007–08 from its large exotic and native softwood plantation estate—a slight increase on the volume sold in the previous year.

The Forest Products Group in the Department of Natural Resources and Water (NRW) is also an important supplier of log timber to the Queensland forest industry from native forest resources on state-owned land. NRW reports that it sold 335 469 cubic metres of timber in 2007–08—a slight decrease on the volumes sold in the previous year. Native hardwood and cypress sawlogs account for the majority of NRW log timber sales, although significant volumes of landscaping and fencing timbers and hardwood pole products are also sold.

Regular, reliable information about timber removals from privately owned native forests and plantations is not available in Queensland. Nonetheless, the Queensland Government (through FPQ and NRW) remains the dominant supplier of log timber to the Queensland forest industry and, as reported above, combined overall sales from FPQ and NRW remained relatively static in 2007–08. Nevertheless, timber prices reportedly increased throughout 2007–08 as a result of rising costs of production and this underpinned a slight estimated increase in the GVP of the forest growing sector in 2007–08.

FPQ expects that its plantation log timber sales will remain at similar levels in 2008–09. Consequently, DPI&F is forecasting that overall forest industry activity will remain flat in 2008–09.

However, over the longer term market analysts expect that the dwelling sector in Queensland (and the demand for forest products) will continue to be sustained by strong population growth, low housing rental vacancy rates, and the strong labour market. OESR also reports that the Queensland economy is forecast to grow by 4.25% during 2008–09, compared with 2.75% nationally. Queensland's population is also expected to grow at an average of 78 500 people per year over the next decade.

FPQ also anticipates that the increasing adoption of chain of custody accreditation by the Queensland processing sector under Australian Forestry Standard Certification Scheme will assist the Queensland forest industry to benefit from the increasing demand for 'environmentally certified' timber driven by consumer environmental awareness. FPQ, NRW, and the Department of Tourism, Regional Development and Industry are currently working with the peak Queensland forestry organisation, Timber Queensland to increase the adoption of chain of custody systems by the Queensland timber processing sector.

The strong Australian dollar and the increasing competitiveness of overseas producers in the local market for forest products is also expected to impact on the Queensland forest industry over the medium term. Forest industry participants report that South American producers of structural timber products are currently seeking alternative export markets as a result of the crash in the large US dwelling construction market due to ongoing impacts of the sub-prime mortgage situation. However, rising fuel costs will, to some extent, offset the impacts of the strong Australian dollar and help to shield domestic markets from imports.

Supply constraints will also continue to limit the ability of the Queensland forest industry to respond to further demand growth. This is because the majority of log timber from FPQ's plantations and NRW's native forests are currently committed under medium to long-term sales agreements. Consequently, rising demand for timber products will by necessity increasingly be met from imports.

In the longer term, additional investment in plantation resources currently being made by FPQ and other private sector investors will increase the volume of timber becoming available in the market. For example, the Queensland Government recently announced that it is providing funding assistance to FPQ to establish a further 8200 hectares of hardwood sawlog plantations in South East Queensland as part of its Western Hardwoods Plan.

It should be noted that much of the developing privately owned plantation estate in Queensland is being dedicated to the production of fibre, not solid wood, products. DPI&F estimates that the privately owned plantation estate (mostly hardwoods – both exotic and native) in Queensland now exceeds 50 000 hectares, although further research needs to be undertaken to generate more reliable data. Reflecting the national trend, the growth in this sector is being driven by investment from a small number of large plantation forestry companies that utilise managed investment schemes (MIS) to raise most of their investment funds.

The Australian Agribusiness Group reports that an estimated $120 million was raised for MIS agribusiness projects in Queensland in 2007–08. This funding is expected to generate a total of 9100 hectares of new agribusiness projects in Queensland. Nationally, about 65% of the MIS funds raised in 2007–08 were directed towards forestry plantation projects and therefore it can be assumed that a majority of the funding directed to Queensland will also be dedicated to plantation forestry projects. Recent Australian Government taxation policy changes relating to plantation forestry MIS are likely to underpin further expansion of this segment relative to other agricultural MIS projects in 2008–09. The increasing focus on forestry plantations as a carbon sink, particularly with the introduction of the Australian Government's Carbon Reduction Scheme, is also likely to stimulate further investment in plantation forestry initiatives.

DPI&F is working to support new investment in private plantation forestry projects in Queensland. Key strategies include promoting Queensland as a potential plantation region for investment, identifying potential trade opportunities; removing regulatory and technical impediments to private plantations, and investing about $3 million of state-sourced funds to undertake targeted research and development projects to improve the capacity of the Queensland forestry plantation sector.

A note about forest industry data sources

Prior to September 2007 *Prospects* utilised the reported turnover of Australian and New Zealand Standard Industrial Classification (ANZSIC) Group 231 (*Log sawmilling and timber dressing*) as defined and measured by the Australian Bureau of Statistics (ABS) in their survey of manufacturing as an indicator of the gross value of forest industry activity in Queensland. However, these data do separately report the forest growing sector, they exclude some elements of the first-stage processing sector, and they also contain some elements of double counting.

Prospects now uses data produced by ABARE in its semiannual Australian wood and forest products statistics publication about the value of log production (gross value of logs delivered to the sawmill door or wharf gate) as an estimate of the gross value of the forest growing sector in Queensland. This, together with estimates of the value added (that is, the 'value added' to intermediate inputs) of ANZSIC Group 231 and ANZSIC Code 2321 (*Plywood and veneer manufacturing*), that is the first-stage processing sector, to provide an overall estimate of Queensland forest industry activity.

Out of the woods

Improving propagation technologies for native hardwood hybrids

As a result of the phasing-out of logging from native forests on state lands, Queensland's subtropical and tropical hardwood plantation timber industry is poised for major expansion.

The renewed interest comes from managed investment scheme (MIS) companies investing in Queensland hardwood plantations—an area of approximately 50 000 hectares is currently planted. The Department of Primary Industries and Fisheries (DPI&F) has supported the industry expansion with its hardwoods research program.

The research program centres on advanced bio-science research: looking at genetic variation in pathogen susceptibility, developing molecular markers for wood quality traits, improving breeding selection through quantitative genetics, modelling plant growth, and assessing genotype and environmental interactions.

In 2006, DPI&F established the Subtropical Forest Health Alliance—bringing together industry, universities, and research and development agencies into a coordinated platform. These strong partnerships have enhanced the value and breadth of the department's research. Working with the University of the Sunshine Coast, DPI&F is supporting propagation and floral biology sciences, and pest and disease research. With Southern Cross University, the department has sourced gene expression studies to identify wood quality markers.

DPI&F released the first generation of improved *Corymbia* hardwood clones in 2006, with trees showing excellent growth across a wide range of sites and demonstrating significant tolerance to frost, pests and disease. These clones also have good wood properties and have shown suitability to produce valuable products at both the thinnings and the final 20-year crop stage.

Unfortunately, extreme shortages of planting material are currently severely hindering industry expansion and additional research is urgently needed to further improve propagation technologies so that the new hybrids can be available for planting. The major economic benefit in the future will be derived from increasing the available quantities of improved hybrid planting stock for industry.

If industry can access increased quantities of this improved planting stock, major short- and long-term economic benefits are predicted for several regions in Queensland: the Burnett and Wide Bay, Gladstone and Miriam Vale, Mackay and Innisfail. Up to 130 new jobs could be created on the new and expanded plantations in these regions, which could boost those regional economies by $14 million a year.

In North Queensland, the plantation industry is expanding at a rapid rate, using red mahogany (*Eucalyptus pellita*) seed from DPI&F/CSIRO second-generation seed orchards near Ingham. This material has given the industry confidence because of its excellent growth and form, and will be the basis for thousands of hectares of new hardwood plantations. The industry is planning to use these trees for high-value timber products such as furniture and flooring.

Special feature: the kangaroo industry

Forecast

In 2008–09, the GVP of kangaroos is forecast at $33 million, 20% lower than 2007–08. First-round processing is forecast at $23 million.

GVP was calculated by multiplying the number of kangaroos killed by the average weight by the average price (paid to the harvester).

The value of first-round processing was calculated by subtracting the total dressed weight from the total amount exported and then multiplying by the domestic pet-food price. While this gives a safe minimum estimate in the absence of data on the ratio of domestic human and pet-food uses of Queensland's harvest, it undervalues the industry to an unknown extent.

Background

The Australian kangaroo industry generates in excess of $200 million annually and employs over 4000 people. Of the 55 kangaroo and wallaby species in Australia, only the red kangaroo, eastern grey kangaroo and wallaroo are harvested in Queensland. Kangaroos in Queensland are classified as protected animals under the *Nature Conservation Act 1992*.

The industry's development is limited by seasonal variability and market opportunity.

Kangaroo harvesters are represented by the Queensland Macropod Wild Game Harvesters Association (QMWGH). This group has 116 licensed harvesters as members.

Regulation

In Queensland, the kangaroo industry operates under a harvest period, which is determined by a quota system monitored by the Environmental Protection Agency (EPA). The quota is based on 10–15% of the annual surveyed kangaroo population and is divided between the three harvesting zones in Queensland— western, central and eastern zones. In 2007, 90% of the 1.97 million annual quota was harvested. The 2008 quota is for approximately 1.95 million kangaroos.

EPA recognises that in some areas commercial kangaroo harvesting may not address population issues experienced by landholders. Under the *Nature Conservation Act 1992*, where kangaroo populations result in property damage, landholders may apply for damage mitigation permits authorising specified culling of kangaroos. Permits are generally used in areas where commercial harvesting is uneconomic, or where a policy decision prohibits commercial harvesting.

Kangaroos must be harvested and tagged by licensed professional shooters, whose accreditation and competency levels are determined by government regulations in each state. EPA monitors harvesting trends based on harvest records that all dealers are required to submit on a weekly basis.

In Queensland, all kangaroo harvesters must obtain an EPA licence and pass an EPA-approved course that instructs in aspects of the laws controlling kangaroo harvesting. Harvesters must also hold firearm competency certification. Suppliers of kangaroo for human consumption or pet food must complete a Safe Food Production Queensland–accredited course. All accredited shooters must harvest in accordance with the ANZECC code of practice for the humane shooting of kangaroos.

There are 2035 harvesters licensed in Queensland, which includes approximately 400 full-time shooters. The remainder are either part-time professional or recreational harvesters.

Licensed shooters in Queensland must deliver harvested animals to one of the 212 chiller box field depots registered to receive kangaroo meat. These are located on the outskirts of rural towns, and kangaroos are stored at the depots until they are transported to a facility for further processing.

Processing

There are six main plants in Queensland that process kangaroo for human consumption. There are nine plants that process kangaroo for pet food.

The Kangaroo Industry Association of Australia (KIAA) is the peak national body representing processors at federal and state government levels. The KIAA provides information resources to industry, assists in industry communication and positively promotes kangaroo products to the consumer.

Domestic market

Since November 2000, domestic consumption of kangaroo meat has increased due to increased product accessibility via large supermarket chains. Consumer acceptance of kangaroo meat has been impacted by its image as a pet food; however, kangaroo meat is steadily gaining acceptance as a lean, high protein product, with the ability to reduce cholesterol. The 'icon' status of kangaroos also affects consumer acceptance.

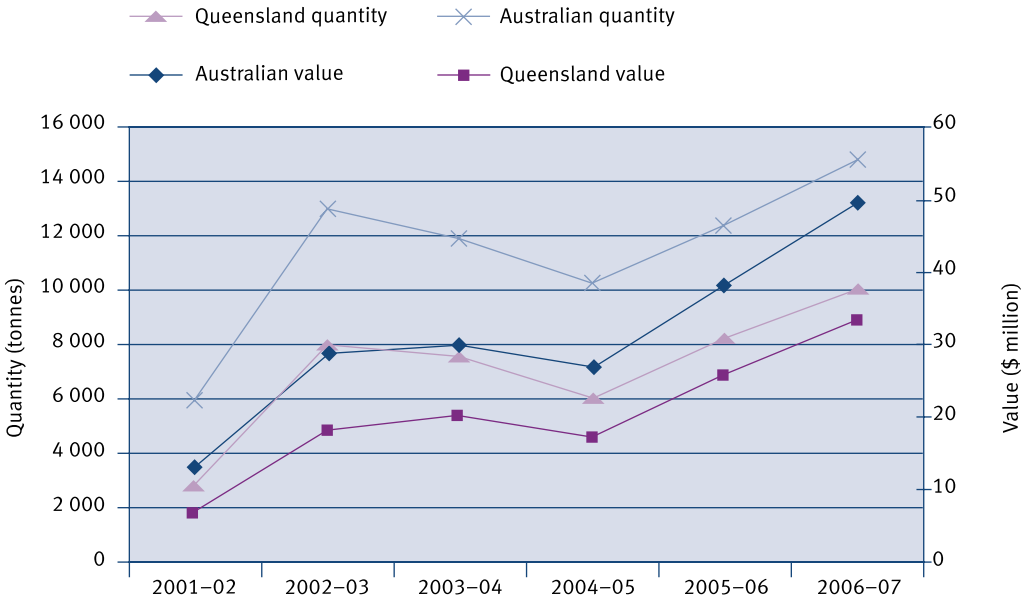
In the 2006 *Contours* publication, it was estimated that of the 32 000 tonnes of kangaroo meat harvested in Australia during 2004, only 4000 tonnes was consumed on the domestic market.

Export market

There are three main kangaroo export products: meat for human consumption, meat for pet food, and skins for leather. The Australian dollar greatly influences export market value and influences demand internationally. Kangaroo meat is currently marketed as a low-value protein source. The overseas demand for kangaroo meat has steadily increased since 1996–97. The resulting price increases of kangaroo meat since this time have placed a greater emphasis on harvesting kangaroos for meat rather than skins. As a result, processors introduced a two-tiered pricing system in 2008, paying harvesters a premium for large animals.

In 2006–07, Australia exported 14 879 tonnes of kangaroo products valued at $50 million (Figure 14). Exports were dominated by kangaroo meat and offal (95.55%), followed by pet food (3.98%) and skins (0.47%).

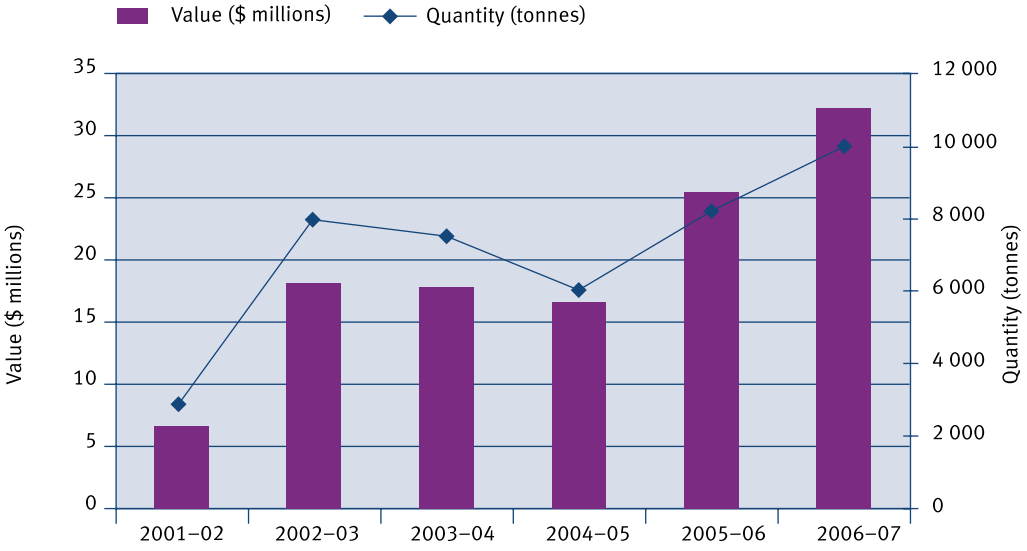
Figure 14. Australian and Queensland kangaroo exports



Source: OESR statistics Queensland (2008).

In 2006–07, Queensland exported 9966 tonnes of kangaroo meat with a value of $32 million, largely for human consumption (Figure 15). Queensland accounted for 67% of the total value of kangaroo meat exported from Australia during this period.

Figure 15. Queensland exports kangaroo meat and offal



Source: OESR statistics Queensland (2008).

In 2006–07, the most valuable export market for Queensland kangaroo meat was Russia ($23 million), followed by France ($3.1 million) and South Africa ($1.9 million). Russia, Queensland's largest export market, has recently suspended the importation of kangaroo products from a number of kangaroo establishments due to shipments not meeting Russian bacterial standards.

The export of kangaroo meat for pet food varies significantly across years but comprises only a small proportion of income for the industry. National exports of pet food were worth $914 611 during 2006–07. Queensland exported 44% of the national total over the past two years. The amount of pet food produced is variable due to the increased focus on producing meat for human consumption.

Kangaroo skins are renowned for the strength of their leather and suitability for the sports footwear market. While kangaroo skin is one of the preferred leathers of footwear manufacturers, the export of skins is a relatively small component of the Queensland kangaroo industry. Kangaroo skins are exported as a salted, green or processed product.

In 2006–07, Queensland accounted for 94% of the national export of kangaroo skins, exporting 66 tonnes worth $1.4 million. In 2006–07, the major market for skins was Italy (94% of the value of skin exports).

Notes

- Gross value of commodities produced is a measure of economic output.
- Estimates of the gross values of Queensland agricultural production are calculated and published at the state level by the Australian Bureau of Statistics (ABS). Presently, ABS publishes estimates for most agricultural commodities twice a year. A preliminary estimate for a particular financial year is published approximately four months after the end of that year. The second (final estimate) is published approximately 12 months after the preliminary estimate.
- Estimates of the gross value of Queensland's fishery production are available from the Queensland Fishery Service, DPI&F.
- All estimates provided in this publication are in nominal dollar values unless otherwise stated.

Definitions

- **Crops** Field and horticulture crops.
- **Fisheries** Trawl- and non-trawl fishing, and aquaculture.
- **Forestry** Log sawmilling and timber dressing.
- **Gross value of commodities produced** Value of recorded production at wholesale prices realised in the market place (for example, cattle sold for slaughter and sugarcane at the mill).
- **Value-added production** 'Value-added' is simply measured as the value of the output produced minus the costs of the intermediate goods.
- **Livestock disposals** Cattle, sheep, pigs, poultry and other live animals sold for slaughter, plus live exports minus live imports.
- **Livestock products** Eggs, milk, wool and honey.
- **Market place** Generally, the metropolitan market in each state and territory. Where commodities are consumed locally, or where they become raw material for a secondary industry, these points are presumed to be the market places. Commodities exported overseas are generally valued at free-on-board prices.