



Australian Government

**Fisheries Research and
Development Corporation**



snapshot 2008

A SNAPSHOT OF THE AUSTRALIAN FISHING
AND AQUACULTURE INDUSTRIES

**A Snapshot of the Australian Fishing
and Aquaculture Industry 2008**

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forward thinking

Fish are a valuable, community-owned renewable resource for recreational, wild catch and aquaculture industries. It is important they are managed using the best information possible. Luckily, Australia is home to some of the finest fisheries and aquaculture researchers in the world who continue to work on the sustainable use of this important resource for all to enjoy.

Australian research takes a forward thinking view of the ecological, economic and social trends that will affect seafood supply and consumption. Australia is working to ensure that there will be sustained growth in supply of top quality products to meet discerning buyers throughout the world.

The Fisheries Research and Development Corporation and its stakeholders have analysed the fishing industry's business environment and the likely developments to take place over the next 20 years. This snapshot has been prepared to support that vision.

World fisheries

Although Australia harvests about 800 commercial species, the volume of Australian fisheries and aquaculture production in 2006-07 was 238 000 tonnes. By comparison, world fisheries and aquaculture production continues to rise and has reached 157.5 million tonnes.



fast figures

Wildcatch

The value of wildcatch fisheries production in 2006-07 was \$1.43 billion. The top six fisheries were:

Rocklobster	\$441m	14 000 t
Finfish	\$438m	127 000 t
Prawns	\$220m	17 300 t
Abalone	\$199m	5000 t
Tuna	\$64m	11 000 t
Crab	\$52m	6000 t

Source: Abare 2007

Aquaculture

Aquaculture production in 2006-07 earned \$793 million. The top five species were:

Salmonids	\$281m	25 000 t
Tuna	\$138m	7500 t
Pearls	\$124m	-
Oysters	\$90m	12 000 t
Prawns	\$45m	3300 t



fast facts

Fish

Fish are living aquatic organisms and belong to two groups — vertebrates which are known as finfish and invertebrates most of which are known as shellfish

Volume

The volume of Australian fisheries production for 2006-07 was 238 000 tonnes

Value

Earning over \$2 billion a year, the seafood industry is Australia's sixth most valuable food industry

Exports

Most high-value seafood is exported. Annual earnings vary according to the state of international economies and the strength of the Australian dollar, but in 2006-07 Australia exported \$1.49 billion of fish products

Imports

Because Australia does not produce enough seafood to meet demand, it has to import fish products. In 2006-07, Australia imported fish products worth \$1.47 billion

Zone

At 13.6 million square kilometres, our fishing zone is the third largest on the planet

Diversity

Australia's fishing zone contains a diverse range of marine and estuarine species – about 4500 known species of finfish and perhaps tens of thousands of invertebrate species

Health

Scientific research is uncovering seafood's positive effect on growth and development, cardiovascular disease, mental and behavioural health, diabetes, and inflammatory diseases

Fun

About one in five Australian's fish for fun, spending around \$2.5 billion a year to do so

Ecology

Sustaining the whole marine environment is the principle underpinning Australian fisheries management

Leader

At over \$441 million, rocklobster earned approximately 20 per cent of the landed value of all fisheries in 2006-07

Jobs

Seafood production generates an estimated 16 000 jobs

Lustre

Cultured pearls are one of our most valuable fisheries exports

Star

Aquaculture grossed \$793 million in 2006-07. A major growth area, farmed salmonids (salmon and trout), accounted for \$281 million of this

Growth

The production of Australian Sardines which are mainly used for feed in aquaculture has undergone strong growth accounting for 14 per cent of total fisheries production in 2006-07

Diversity

Australia's fishing zone contains a diverse range of marine and estuarine species - about 4500 known species of finfish and perhaps tens of thousands of invertebrate species

Advantage Australia – diverse coastline

Australia has advantages that offset a lack of nutrients such as one of the longest and most diverse coastlines in the world.

This length and diversity delivers a unique range of species from the changing habitats of the Antarctic Ocean and Southern Ocean to the tropical waters of the Indian Ocean, Timor Sea, Torres Strait and Coral Sea.

The coastal ecosystems of the Australian continent and Tasmania support high value crustacean and mollusc fisheries of world significance. These include rock lobster, prawns, pearl oysters and abalone.

A lot of Australia's coastline is sparsely populated and far from pollution, so the quality of the fishing and the fish is excellent, as are the opportunities for aquaculture.





volume

High quality fishery, but low volume

Our fisheries are characterised by high quality, high value, but low volume. Although our fishing zone is the world's third largest, our total commercial catch is only about 0.2 per cent of the world tonnage or 54th in the world in terms of production.

Although Australian waters are particularly rich in molluscs and crustaceans and have a high diversity of finfish, the low levels of nutrients and plankton in Australian ocean waters do not support high-tonnage catches of finfish compared to other nations' waters.

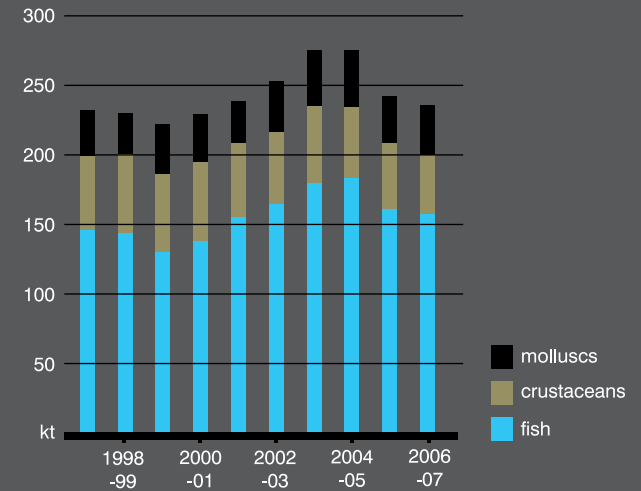
This is due to major poleward flowing warm currents. They are the East Australian Current, which flows southward from the Coral Sea, and the Leeuwin Current, which flows southwards along the Western Australian coast and eastward into the Great Australian Bight.

Because of these currents, waters around Australia are mainly tropical and subtropical in origin and are mostly nutrient poor. Soils are generally low in nutrients, and with a highly variable rainfall, result in low nutrient loads entering the sea from the land. This is quite different to many mid-latitude productive coastal areas around the world.

The world's high volume finfisheries are found where nutrient-rich cold water rises to the warmer upper layers. These upwelling systems occur where currents flow towards the equator and are characteristic of all other major ocean basins.

In Australia, this upwelling happens mostly in southern waters, and sustains the South East Fishery — one of our largest fisheries by volume.

Volume of Australian fisheries production





our seafood exports

Seafood is a significant export for Australia along with beef, wheat and milk. In 2006-07 the combined export value of seafood was \$1.49 billion.

Rocklobster is our most valuable edible fisheries export, followed by pearls, abalone and tuna. Export earnings for rocklobster in 2006-07 were \$463 million.

Hong Kong remains our number one rocklobster customer with exports worth \$235 million.

Pearls are our number two export valued at \$314 million.

Australia is the world's biggest supplier of wild-harvest abalone, which is highly sought after in most Asian nations. Total value of abalone exports was \$246 million.

Exports

The top five export earners in 2006-07 were:

Rocklobster	\$463m
Pearls	\$314m
Abalone	\$246m
Tuna	\$162m
Prawns	\$93.6m

Export Destinations

The top five export destinations for 2006-07:

Hong Kong	\$642m
Japan	\$374m
United States	\$151m
China	\$60.5m
Chinese Taipei	\$51.2m

our seafood imports

The total value of Australian fisheries imports has risen by \$203 million or 16 per cent in 2006-07 to \$1.47 billion. This is largely due to greater imports of fresh, chilled and frozen prawns and frozen fish fillets.

In the past, Australia was a net importer of fisheries products consisting of lower value products such as frozen fish fillets, canned fish and frozen prawns. In contrast, Australian fisheries exports have been dominated by high value species.

However, the gap between the value of fisheries exports and imports is closing.

In 2006-07 the value of Australian fisheries exports (\$1.49 billion) was approximately equal to the value of fisheries imports (\$1.47 billion). A major factor in this shift has been the strength of the Australian dollar against major trading partners. This makes exports less competitive in overseas markets and imports more attractive to domestic consumers.

Imports

The top five imports, by value in 2006-07:

Fresh, chilled or frozen prawns	\$246m
Canned fish	\$244m
Frozen fish fillets	\$228m
Pearls	\$182m
Canned crustaceans and molluscs	\$101m

Import Sources

The top five import sources in 2006-07:

Thailand	\$280m
New Zealand	\$203m
China	\$161m
Vietnam	\$155m
United States	\$63.2m



climate change

How will climate change affect our fisheries? Will there be dramatic changes to our marine ecosystems? And if so, what might they be?

Much of the research into climate has focussed on possible changes in distribution and abundance in marine species, driven by temperature. Warmer sea surface temperature is just one consequence of climate change and may already be causing eastern Australian fish species to move south to cooler waters.

But the situation is more complicated than that. Many other factors are also important.

For example, changes in ocean chemistry may be more significant than temperature changes. Increases in CO₂ levels will make the ocean more acidic. Changes in pH levels may impact heavily on organisms that use calcium carbonate for their skeletons and shells, for example, corals and molluscs.

Other physical changes would include:

- >> an increase in solar radiation on Australian water's sea surface
- >> a greater stratification and shallowing of the mixed layer by about one metre – reducing nutrient inputs from deep waters
- >> an increase in surface winds
- >> a general decline in the strength of surface currents.





what affects our fisheries?

Habitat threats

It is essential to protect fishing habitats to ensure they are sustainable. Because a variety of habitats are vital to the existence of some species, it is crucial we look after them.

Inappropriate land clearing, fertiliser run-off, irrigation, regulation of river flows, wetland reclamation and destruction of mangroves all impact freshwater and marine fisheries.

Pest and diseases

A major environmental threat to Australia's fisheries and their ecosystems come from pest organisms and pathogens, which can reduce production by competing for food or habitat with local species, or by predation.

Exotic pathogens or pests may arrive in imports, for example, aquarium fish, bait fish, aquaculture feeds and other aquatic organisms and foodstuffs. They may also come from ballast water discharged by visiting vessels and as hull-fouling organisms. Some of these include the Northern Sea Star, Green Crab, Black Striped Mussel, European Fanworm and the Japanese Goby.

Pressure on profit

Australian fisheries have recently undergone some significant changes. Increasing costs, particularly fuel prices have influenced fishing effort. Some fisheries have been adversely affected by total allowable catches, more restrictions and changes to access arrangements. This has affected profit margins for fishers as has the appreciation of the Australian dollar in recent years.

However, the most significant impact has been the rise in the price of fuel. Fuel costs generally comprise a large proportion of total cash costs for fishers especially in trawl fisheries and can add up to almost 40 per cent of the total running costs.

For fisheries using methods other than trawl such as longline, fuel costs are a smaller share of total costs at around 17 percent. By comparison fuel costs in the Australian grains industry is about 9 per cent.

commercial fishing

The commercial wild-catch sector is extremely diverse. Enterprises range from single low technology owner operators for whom the lifestyle is important to large companies that use technology very efficiently. The sector provides important economic and social benefits within coastal communities.

The commercial sector of the fishing industry is Australia's sixth most valuable food-based primary industry. In 2006-07 it produced about 186 000 tonnes of produce worth \$1.43 billion.

Regardless of the size of the operator, the sector produces excellent quality seafood that is highly regarded internationally. Advances and adoption of best-practice in post-harvest processes and practices have resulted in high-quality live, fresh and frozen Australian seafood reaching markets around the world.

One of the strengths of the sector is the world-class research and development linkages to the industry that focus on solutions highly relevant to the economic, environmental and social dimensions of the industry.





Aquaculture - clean, green and growing

In the next 20 years it is estimated that we will need an extra 37 million tonnes of fish to meet global seafood demand. With limited room for expansion in wild catch fisheries most of the additional supply will have to come from aquaculture. Our goal for the near future is to aim for 100 000 tonnes of finfish by 2015.

Australia produces 240 000 tonnes of fish a year with aquaculture contributing a third of this. Yet to meet the Australian Heart Foundation recommendation of two seafood meals a week Australia would need well over 700 000 tonnes of seafood each year. It shows the gap between supply and demand is growing.

However, aquaculture is one of the fastest growing primary industry sectors and continues to be an important part of Australian fisheries production.

Over the decade to 2006-07 aquaculture production has almost doubled from 29 300 tonnes to 57 800 tonnes.

The gross value of aquaculture production in 2006-07 was \$793 million with the most valuable aquaculture species being farmed salmonids, (salmon and trout). Together they accounted for 42 per cent of total production volume and approximately one-third of total value. They are followed by Yellowtail Kingfish, Barramundi and Southern Bluefin Tuna.

To ensure that aquaculture continues to develop, significant investment is needed to secure land and water resources, production technologies, supply chain development, value-adding, marketing and promotion and people development.

recreational fishing

Australian's enjoy a wide range of recreational fisheries—from northern estuaries for Barramundi, to southern waters for snapper and King George Whiting, and inland waters for trout and native fish.

About 80 per cent of the recreational catch is from salt water—in estuaries, off beaches and from the ocean. The remaining 20 per cent is fished from fresh water—from rivers, lakes, dams and ponds.

Recreational fishing is a huge activity in Australia by any measure with about 3.5 million people fishing each year. It is also big business with anglers spending about \$650 million just on tackle. That doesn't include the \$2.5 billion spent on boats, 4x4 vehicles, accommodation, travel and all the other accessories.

For most people, the major reason for recreational fishing is to relax and unwind. Very few recreational fishers are motivated primarily by the need to catch fish for food.

Apart from being a source of food, fisheries resources are valued by the community in other ways. People derive reassurance knowing that the environment and the diversity of species are being maintained and that fisheries resources exist.

The aquatic environment is also used by people, particularly tourists, who do not capture the resource, but simply observe and enjoy it.



fishing Indigenous/customary

Indigenous people were the first custodians of Australian marine and freshwater environments. They have a close, interdependent relationship with the land, water and living resources of Australia through traditional fishing practices over tens of thousands of years.

Recently, the Australian Government endorsed principles on Indigenous fishing that will encourage the protection of traditional fishing practices while supporting greater involvement of Indigenous communities in marine management.

The scope for Indigenous commercial participation includes new and established sectors of the fishing industry, including aquaculture as well as the charter industry and other emerging opportunities in fisheries related tourism and recreation.





our people

There are significant challenges in developing the right people for the fishing industry. It is these challenges that shape the FRDC's people development program.

Its five priorities are:

1 Investing in leadership

Investing in leadership at all levels of industry and across all sectors is critical, and creative approaches are needed to identify and nurture future leaders.

2 Building industry capacity to drive change and achieve goals

Industry organisations need to build their capacity to meet future challenges and opportunities by having access to knowledge and information and by having opportunities to strengthen governance and representational capabilities.

3 Provide opportunities for knowledge transfer and R&D adoption

We need an emphasis on adoption of knowledge, with opportunities to learn within and across sectors, supply chains and regions. As R&D gaps are identified, the program provides opportunities to develop the necessary research and extension skills of our service providers.

4 Build workforce capability

The commercial sector needs to invest in developing skills that are going to directly improve business profitability and sustainability. Labour shortages resulting from increased competition from other sectors are a very real issue. A high priority will be to undertake research and development to understand workforce needs and build workforce capability.

5 Recognise and promote achievements

The FRDC supports awards for individuals and teams from our research and industry communities. The new program will encourage and value learning, innovation and R&D adoption.

seafood for good health

Seafood is an important part of a healthy diet and becoming the food of choice for the health conscious. Seafood not only tastes great it is healthy, convenient and versatile.

Fish and seafood is a satisfying meal for all the family to enjoy. It is low in calories, high in protein and rich in vitamins, minerals and natural oils.

The fish oils containing long-chain omega-3 fatty acids may play a role in reducing the risk of a range of health conditions, from coronary heart disease, arthritis and diabetes to mood and attention disorders, memory loss and perhaps some cancers.

There is now compelling evidence that consuming omega-3 oils are good for us and are essential nutrients in our diet, just like vitamins and minerals. We only need around one per cent of our total recommended fat intake to be long chain omega-3s, but most people still do not consume nearly enough despite having plenty of the other types of fat in their diets.

To eat the best diet to avoid chronic disease women should consume 430mg per day of long-chain omega-3s and men 610mg per day.

Fish is the easiest way to boost omega-3s as well as other vitamins and minerals. Just by eating fish and seafood two to three times a week especially oil-rich fish such as Atlantic Salmon, herring, sardines, tuna, mackerel and even oysters and mussels you can reach the target intake and make a difference to your health.





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