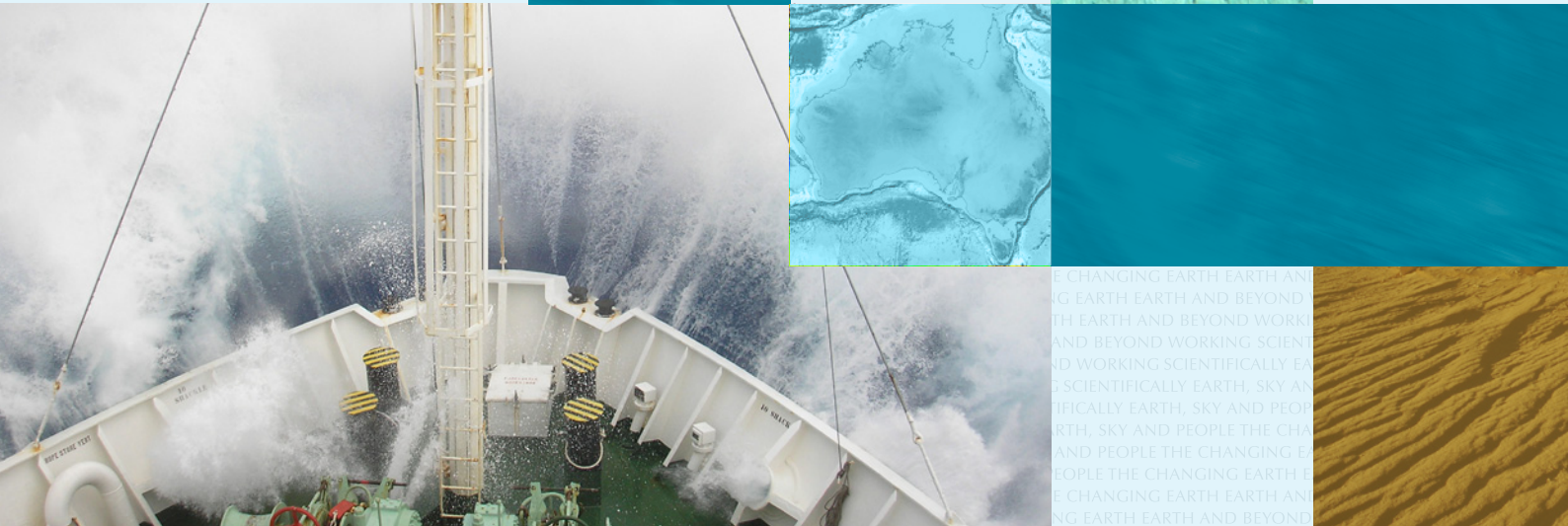




Australian Government
Geoscience Australia

TEACHERS NOTES AND STUDENT ACTIVITIES
RECORD NO. 2011/24

Australia's Maritime Jurisdiction





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SECOND EDITION RECORD NO. 2011/24

GEOSCIENCE AUSTRALIA
LAW OF THE SEA AND MARITIME
BOUNDARY ADVICE PROJECT

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This booklet is intended to provide information for both Science and Geography teachers to support their work with pupils in both upper primary and secondary settings. Teachers should evaluate the student activities to ensure they are of appropriate difficulty for their cohort of students. If you have any further comments or feedback, please email us: education@ga.gov.au.

CONTENTS

HOW WELL DO YOU KNOW AUSTRALIA?	1
INTERESTING FACTS	3
THE LAW OF THE SEA	4
THE MARITIME ZONES	5
The Baseline	5
Territorial Sea	8
Contiguous Zone	8
Exclusive Economic Zone	8
Extended Continental Shelf	9
The High Sea and 'The Area'	12
MANAGING THE JURISDICTION	13
Fisheries in the Australian Fishing Zone	14
Offshore Petroleum and Gas	16
Marine Bioregional Planning	17
CONCLUSIONS	19
REFERENCES	20
USEFUL WEBSITES	20
GEOSCIENCE AUSTRALIA SOURCES	20
GLOSSARY	21
STUDENT ACTIVITIES	23
LAW OF THE SEA	24
STAR LAND IN THE TROPICAL OCEAN	25
ANSWER SHEETS	27
LAW OF THE SEA	28



HOW WELL DO YOU KNOW AUSTRALIA?

If an average Australian was asked to draw a map of all of Australia, they would sketch the Australian continent and Tasmania. Some of the cleverer people may include a few of the bigger islands, such as Kangaroo Island off South Australia and Fraser Island off the coast of Queensland.

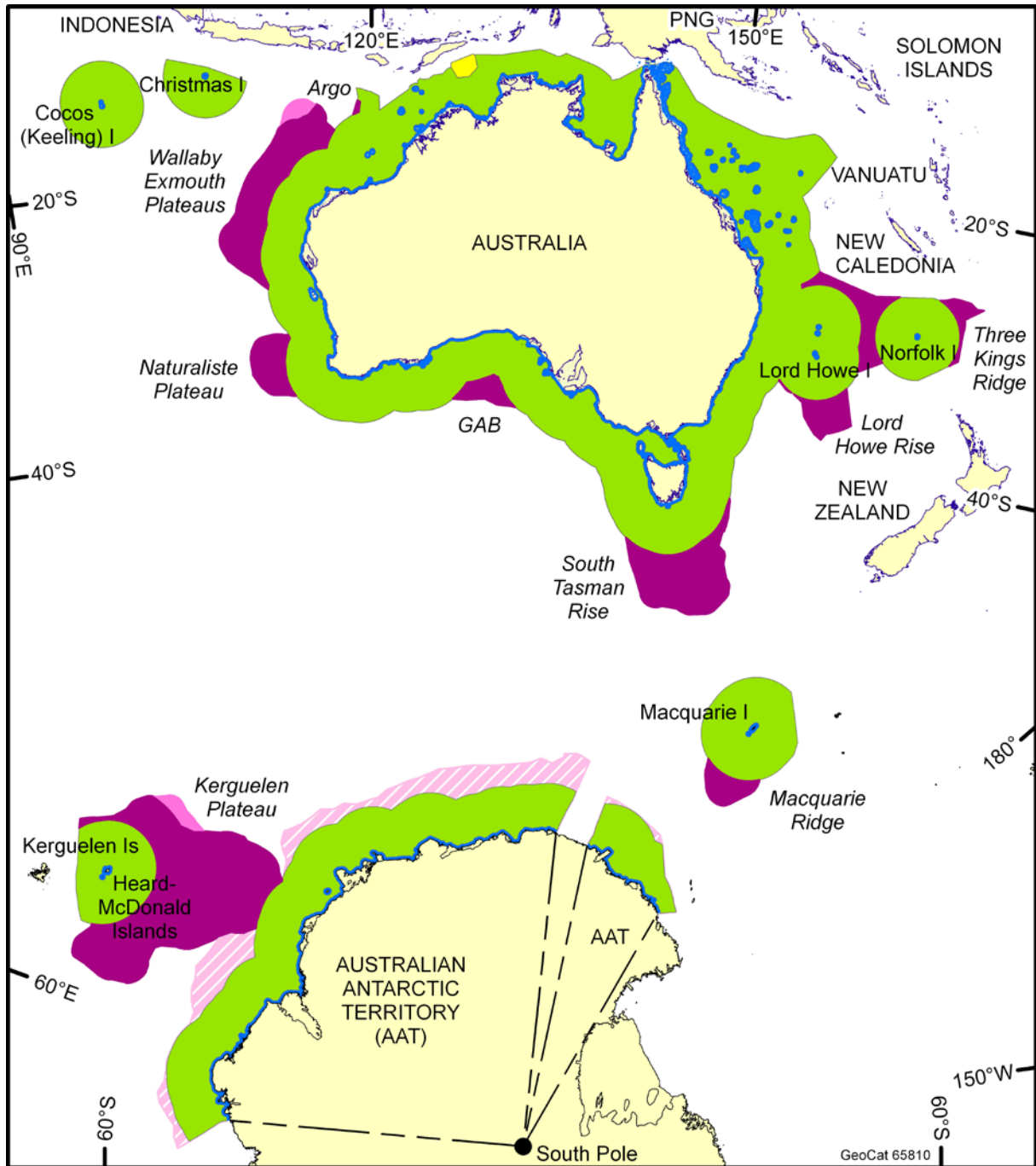
Did you know that in fact Australia is much larger than most people realise? Much, much larger. Australia has one of the largest land and water jurisdictions in the world. What is a jurisdiction? A **jurisdiction** is an area governed by a single country. In this area, that country (also known as a State¹) can pass laws and the people that live there are citizens of that country. Australia's jurisdiction is made up of land on two continents, thousands of islands and millions of square kilometres of sea.

Figure 2 shows the full extent of Australia's jurisdiction. The different colours illustrate the various zones in the jurisdiction. We will learn more about the zones later, for the moment all we need to know is that different zones have different rules. In some zones Australia is the only country that can govern the area, in other zones Australia only owns the resources (such as rights to fish, mining or oil reserves), and citizens from other countries are allowed to go to those areas as long as they do not interfere with Australia's resources.



Figure 1: Refuelling operations by survey ships used for Law of the Sea work.

¹ The term "State" can mean two things. Within Australia there are states, such as South Australia and Tasmania. Internationally, the term State refers to a country. For example, Australia is a State, Fiji is a State, but because it is not an independent country, Tasmania is not a State in the international sense.



AUSTRALIA'S CONTINENTAL SHELF JURISDICTION

- Territorial sea and internal waters
- Areas of marine jurisdiction within 200 M of Australia and its external territories
- Joint Petroleum Development Area under Timor Sea Treaty 2002
- Area of Australia's continental shelf beyond 200 M as confirmed by the Commission on the Limits of the Continental Shelf
- Area considered by the Commission and yet to be resolved
- The Australian Antarctic Territory region that Australia requested the Commission not consider for the time being

Note: The areas of continental shelf depicted to the north-west of Australia reflect the terms of the 1997 maritime boundary treaty with Indonesia which has not yet entered into force.

1 nautical mile (M) = 1852m

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Figure 2: Australia's Maritime Jurisdiction, treaties with neighbouring countries plus Search and Rescue zones.

INTERESTING FACTS

Did you know...?

- Australia has over 8200 islands. Western Australia is the state with the most number of islands (3747), while the Australian Capital Territory has none.
- Australia's largest island, Melville Island in the Northern Territory has an area of 5786 square kilometres. That is five times larger than Hong Kong!
- Australia's highest mountain is not Mt Kosciuszko (2228 metres)(Figure 3), but rather Mawson Peak (2745 metres). Mawson Peak is located on Heard Island in the Southern Ocean. Parts of the inland plateaus of the Australian Antarctic Territory are even higher than this.
- Australia has two active volcanoes. One is located on Heard Island (Figure 4), the other nearby on McDonald Island.
- The driest part of Australia is not the Outback but Antarctica. It is so cold that moisture does not evaporate to form clouds and rain.
- The ice in some parts of Antarctica is over 4 kilometres thick.
- Both New Zealand and Papua New Guinea were once part of Australia. New Zealand was separated from the colony of New South Wales in 1841. Papua New Guinea became an independent country in 1975.
- Australia added an additional 2 560 000 square kilometres to its jurisdiction as recently as 2008. That is an area approximately ten times greater than New Zealand!
- Australia's entire jurisdiction, both land and sea, is 27 450 000 square kilometres, and over 5 percent of the Earth's surface. Just for fun, if we swapped our jurisdiction for the same area on the moon, we would own over 72 percent of the moon.
- One of Australia's biggest exports is natural gas from the north-west coast of Australia. The gas is taken from wells drilled into the seabed, processed and shipped as far away as Japan and China. Gas production is increasing as it produces less pollution than the coal normally burnt to generate electricity.



Figure 3: View of Mount Kosciuszko.

Source: Wikimedia commons, photograph by James Wormell 2007.



Figure 4: Big Ben with smoke emitting from the volcanic vent on Heard Island.

Source: Department of Sustainability, Environment, Water, Population and Communities. Australian Antarctic Division.

THE LAW OF THE SEA

Australia's jurisdiction is not only land but includes millions of square kilometres of the sea. In fact, the area of sea is 1.8 times greater than the area of continental land. However, unlike the land, where Australia has sovereign powers; the majority of Australia's maritime jurisdiction is made up of zones with varying levels of sovereignty and sovereign rights²

The term '**sovereign rights**' is an interesting one; to have sovereign rights means that the country has the sole right to extract, or use the economic resources of an area. It does not mean the area itself belongs to a country, just the area's resources. A country can pass laws in an area where it has sovereign rights, but these laws can only apply to the resources and the factors affecting them. It is important to understand this distinction as it is the biggest difference between the various maritime zones.

How are the **maritime zones** decided? Ever since people first sailed the seas, questions were asked about which country owned the area of sea that they would sail across. These questions were mainly asked by merchants or fishermen who roamed the sea to fish or trade. Often countries attempted to reserve fishing grounds close to their shore for their own ships, yet some interested in trading or fishing desired to gain access from areas further from their shores.

Over time it was realised that a common solution needed to be found, because often when one country claimed ownership of an area, another country would disagree. After several attempts, the United Nations hosted a series of conferences where countries debated what laws should govern the seas that all countries would need to adhere to and adopt. The result of these conferences was the establishment of the **United Nations Convention on the Law of the Sea** (UNCLOS).

UNCLOS is an agreed set of rules for the Law of the Sea. It is a long and complicated document that resulted from a lot of bargaining and compromise. It contains many different parts, some deal with ship registration and rules and others determining who is responsible for managing the resources or the environment. The rules Australia is most interested in are the ones governing the creation of maritime zones.

The basic concept of creating maritime zones in UNCLOS is that it is the land, more specifically, the coastline creates the anchor point for the maritime zones. Therefore, the country's rights over the sea reduce the further one moves from that country's coastline. UNCLOS provided countries with a common method of determining the width of the maritime zones and the rules that apply within them. UNCLOS created a process by which countries could claim their maritime zones, it also emphasised the need for the country to manage and take a reasonable care of the sea in their zones.

Australia has taken a keen interest in its maritime jurisdiction and was an active participant in UNCLOS since the 1950's. Australia signed the current treaty in 1994 and undertook a process to harmonise domestic legislation to align with UNCLOS where appropriate.

² Sovereign powers are those that enable an independent State to proclaim laws and administer an area. A country that has the power to do this in an area is said to have Sovereignty over the area. The term is derived from the word Sovereign, another word for a King or Queen.

THE MARITIME ZONES

UNCLOS created six different types of zones. In each of the zones the rights of the country vary. As pointed out before, the further we go from the coast the rights of the country lessen. The six zones reflect this design and as such are based on a measured distance from the coast. The zones are:

- the territorial sea,
- the contiguous zone,
- the exclusive economic zone,
- the extended continental shelf,
- the high seas, and
- “the Area”.

The Baseline

Before we learn more about the zones we should discuss what is called the ‘**baseline**’. This term is used by UNCLOS and can be described as the start line for the various zones. The baseline is similar to the start line at a race track with the distance to the finish line, irrespective of the route it follows, being the essential part. If the starting line is moved 100 metres to the east, so too is the finishing line. The Australian coastline (including Australia’s island and reef coastlines) therefore would be considered the baseline for Australia.

In UNCLOS the baseline (our starting line) is defined as the line depicting the coastline on nautical charts. Nautical charts are the maps used on ships to sail the oceans. In Australia we do not only use charts to find the coastline, but also utilise photos taken by satellites or aircraft, and land maps created by state mapping agencies.

Finding the baseline is actually the hardest part of creating the maritime zones. In Australia the coastline we use to define our baseline is taken to signify the coastline at ‘**lowest astronomical tide**’. This is a complicated way of saying that we pick the baseline when the tide is at its lowest point. We do it this way because when the tide is at its lowest point the coastline is at its greatest seaward extent. As discussed earlier, it is the coastline that determines the zone boundaries. This method is approved by UNCLOS and is standard practice for most States.

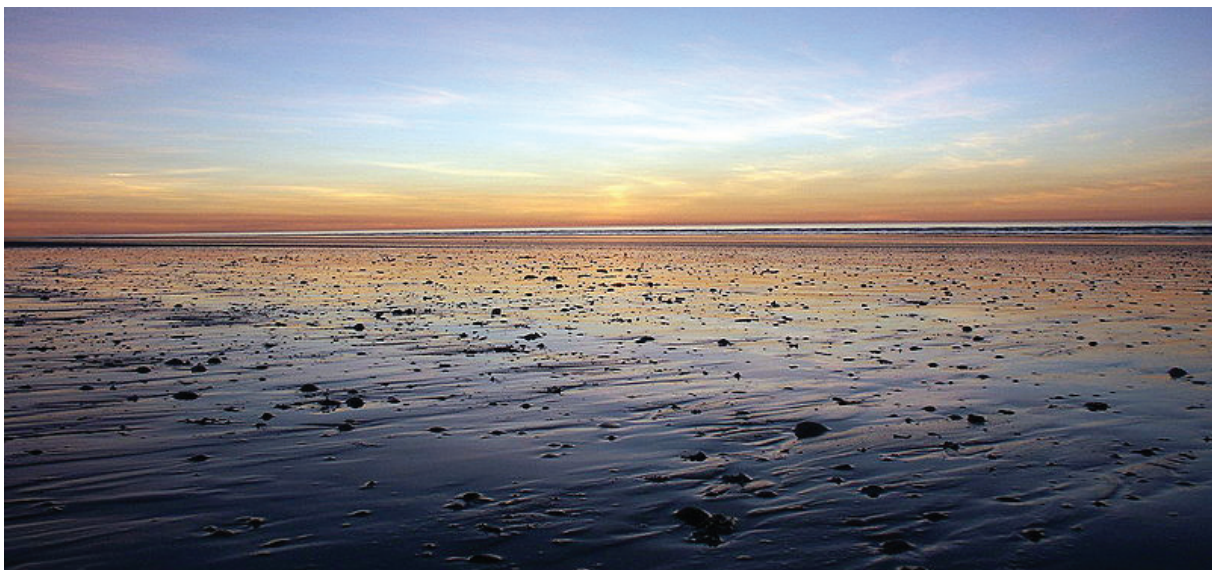


Figure 5: Sunset at low tide on Eighty-Mile Beach, Western Australia.

Source: Wikimedia commons, photograph by Nachoman-au 2003.

The first step in finding the baseline is to obtain images, or maps of the area under investigation, with preference for very detailed images. A computer programme is used to work out what the tide height was when the photos were taken, and from that we find out where the lowest astronomical tide position would lie.

Using a computer with a flat screen and digitising pen, the baseline is traced digitally by hand using the image as the background. This task requires a person with a lot of technical skill, and knowledge of the natural processes that form the coast. Some of the indicators they look for can be quite minor, such as a slight change in colour on the image. This may show the low water line because different types of seaweed, with varying colours, grow at different water depths. It is a slow process, and considering that Australia's coastline is almost 60 000 kilometres long, it is an enormous task!

To complicate matters more, UNCLOS contains a few special forms of baselines. Usually we use what is termed a '**normal baseline**'. This baseline follows the lowest astronomical tide line of the coastline. In areas with bays or rivers we can sometimes simply insert a line directly across the mouth if certain rules are met. In other areas, for instance, where the coastline is very jagged or there are many islands very close to the coast, there are UNCLOS rules that allow straight lines instead of following the coast. These are known as '**straight baselines**' (Figure 6). Other than how they are drawn, these special lines are exactly the same as the normal baseline when it comes to creating maritime zones.

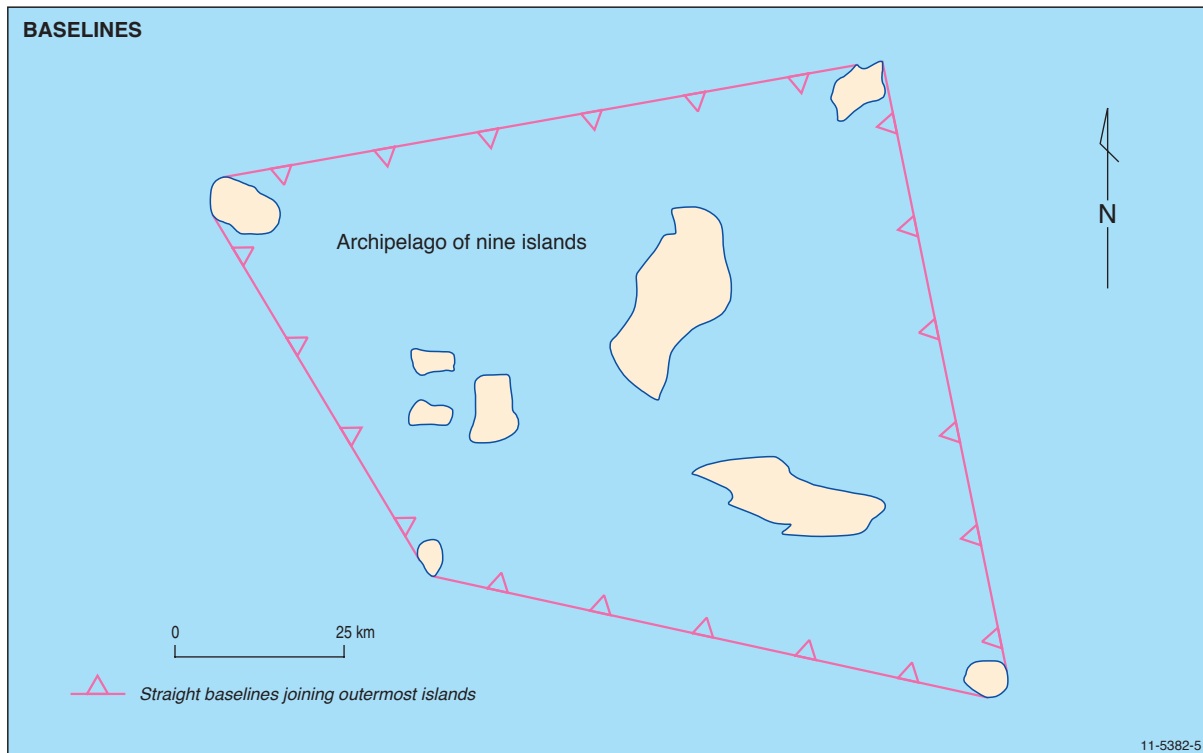


Figure 6: An example of straight baselines.

To assist in finding the baseline, several state agencies are now digitising the coastline with financial assistance from Geoscience Australia. This collaborative project will benefit Australian, State and Territory Governments as the finished product has many other uses in government, environmental and scientific applications.

Now that we have discussed the baseline, let us look at the zones generated from it (Figure 7).

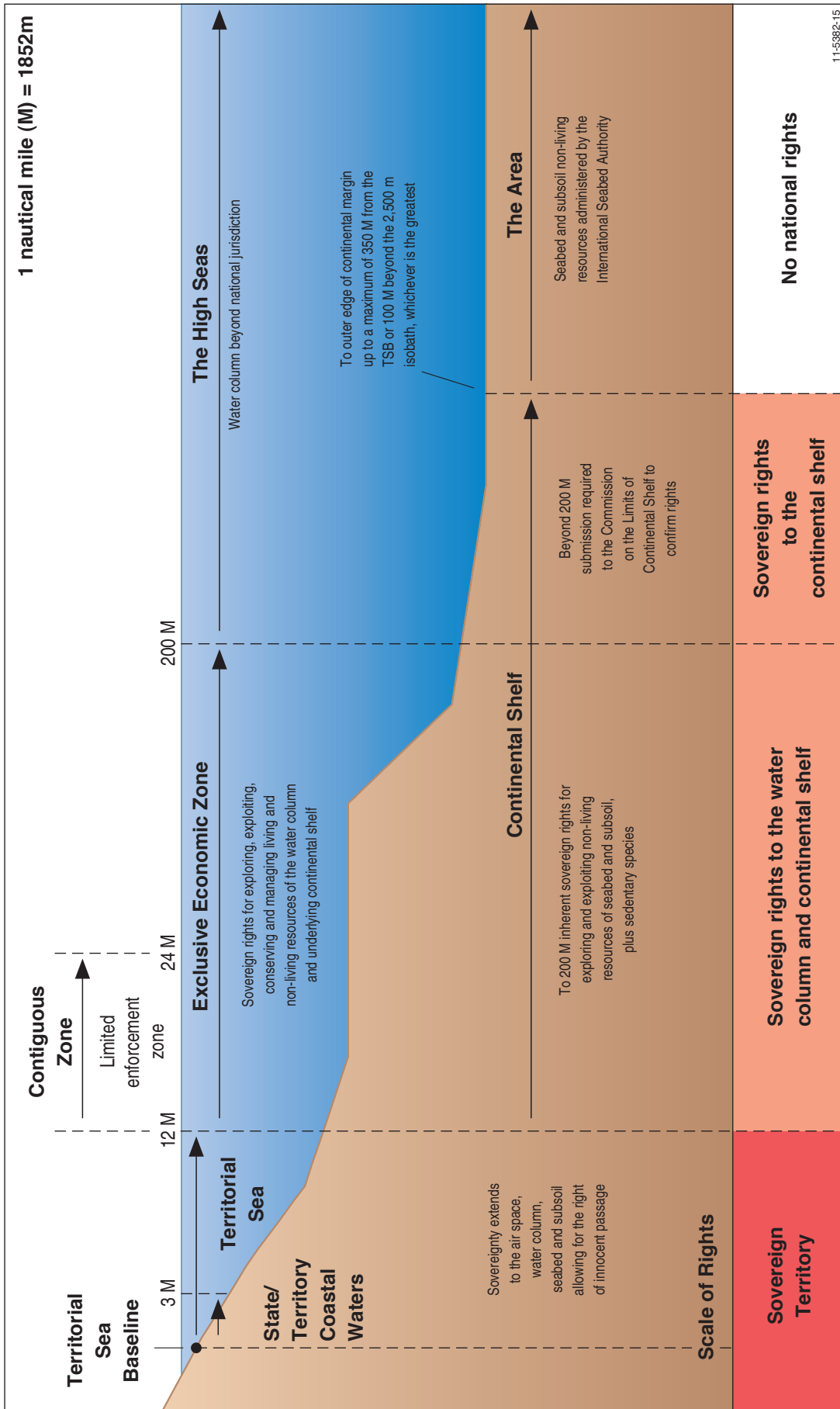


Figure 7: Maritime Jurisdictional Zones and associated Rights.

Territorial Sea

The **territorial sea** is the inner-most zone, consisting of the first 12 nautical miles (nm)³ of sea from the baseline. Remember that this zone is from all baselines, normal straight and river closing, regardless of whether they originate from the mainland or an island (some reefs too). For example, the territorial sea will be drawn from islands and reefs, such as in the Great Barrier Reef. All resources in the territorial sea belong to the country, including the subsoil below the seabed and the airspace above the water.

A country's jurisdiction is strongest in the territorial sea. In many respects this zone of sea is legally the same as land, except that foreign ships are allowed to travel through the territorial sea without permission. Nevertheless, in return the ship must not stop, fish, pollute or conduct any activity which could adversely affect the country.

Waters that are situated on the landward side of the baseline, such as Port Phillip, Port Jackson or the Derwent River are termed 'internal waters'. Under UNCLOS these waters are completely integrated into the jurisdiction of the country. When foreign vessels enter these waters the special privileges they had in the territorial sea no longer apply.

Australia has a unique extra zone inside the territorial sea that is not part of UNCLOS. The first 3 nautical miles of territorial sea form the 'coastal waters'. In this zone the Australian Government has given some of the jurisdictional duties to the adjoining state governments. The coastal waters do not exist off our external territories and have no international significance. Australia claims a territorial sea of 850 000 square kilometres of which 150 000 square kilometres are coastal waters.

Contiguous Zone

The **contiguous zone** extends from the outer edge of the territorial sea for another 12 nautical miles (therefore the outer edge is 24 nautical miles from the baseline). This zone is an interesting one because it does not confer or concern the resource rights of the country, instead it is a legal zone where the country is allowed to pass laws which protect or punish violations of its customs, immigration or quarantine. Think of the contiguous zone as a buffer zone to protect the territorial sea.

For example, if a vessel is attempting to smuggle banned goods into Australia, Australia's customs or naval vessels are permitted to arrest the vessel in the contiguous zone.

Exclusive Economic Zone

The largest Australian zone is the exclusive economic zone; this zone is often referred to as the EEZ. The **exclusive economic zone** starts from the edge of the territorial sea and extends out to a maximum of 200 nautical miles from the baseline. This of course means that the contiguous zone and the exclusive economic zone overlap. This is not a problem because as we found out earlier the contiguous zone is a legal zone and not a resource zone.

As the name suggests the exclusive economic zone is an area where a country has exclusive economic rights to any exploitable commodity. Exploitable commodities take many forms, for example, fish, mineral deposits on the seabed and subsoil beneath it, wind, wave and tidal power, and genetic data from living resources in the area. States also have the right to protect resources and the environment in the exclusive economic zone, such as protecting fish stocks from illegal fishing.

³ An international nautical mile is equivalent to 1852 metres. Nautical miles are used at sea (and by aircraft too) instead of kilometres because they tie in better with navigation co-ordinates. A nautical mile is one minute of latitude at the equator. It is not the same as a mile used on land.

Australia’s exclusive economic zone is huge at 10 190 000 square kilometres (1.25 times the size of mainland Australia and Tasmania). Whilst we are entitled to all the resources in this area, foreign vessels also hold rights. Australia may not hinder the passage of ships in the exclusive economic zone unless they are interfering with Australia’s resources. Foreign vessels can extract resources only if they receive permission from Australia and pay the appropriate royalties.



Figure 8: Fishing boats at the wharf at Eden, New South Wales.

Source: Australian Fisheries Management Authority.

Extended Continental Shelf

Like the exclusive economic zone, the extended continental shelf zone is one that gives resource rights to the country. It is called an extended continental shelf because in this zone the continental shelf extends out beyond the EEZ. In the extended continental shelf the country has the sole rights to resources, but only those found on the seabed and the subsoil. This means the country owns the mineral deposits, plus any living resources, provided that they spend most of their time on the seabed (such as starfish, crayfish or seaweeds and sponges). Fish which do not live on the seafloor are not the property of the country and may be fished by vessels of any country.

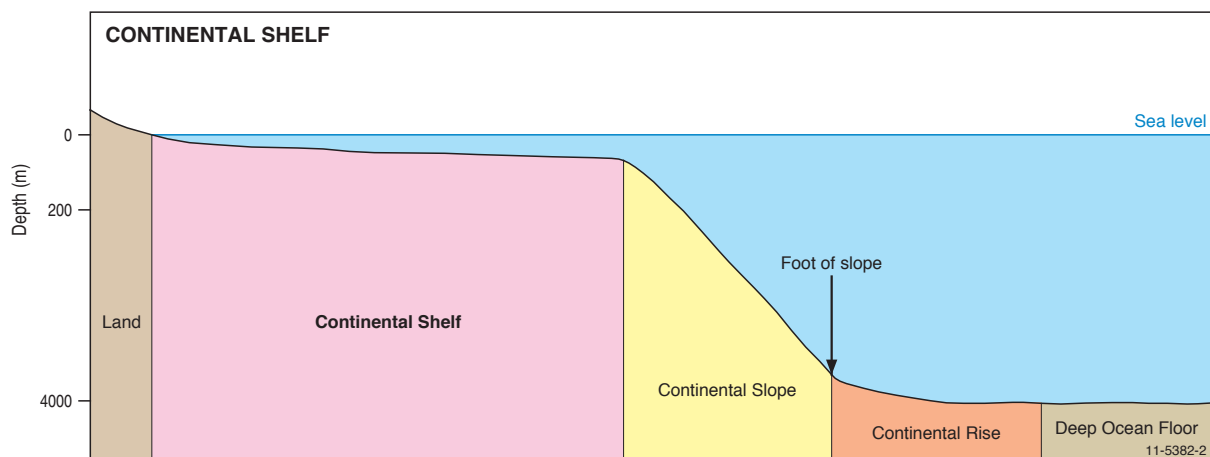


Figure 9: A profile of a typical continental shelf.

What is a continental shelf? It is a little complicated to explain, imagine that the continents sit on elevated platforms above the deep ocean floor. These platforms are known as **continental shelf** (Figure 9). The term is a little misleading as some large islands, such as Iceland, also have continental shelves. The shelves usually have quite distinctive features, such as a land area, surrounded by a shallow sea of about 200 metres deep and 100 to 200 kilometres wide, followed by a gentle downwards slope leading to a bend in the deep ocean floor (Figure 10 and 11).



Figure 10: Map showing the continental shelf between 0 and 200 metres. All the continents have similar shelves.

Under a special set of rules in UNCLOS, if a country can prove to a United Nations committee that its continental shelf extends beyond the exclusive economic zone, the country is able to declare the area part of its extended continental shelf. To prove the claim the country provides the committee with a submission containing scientific evidence showing the bathymetry (water depth), morphology (seabed shape) and sometimes also geological evidence of the continental shelf (Figure 12 and 13).

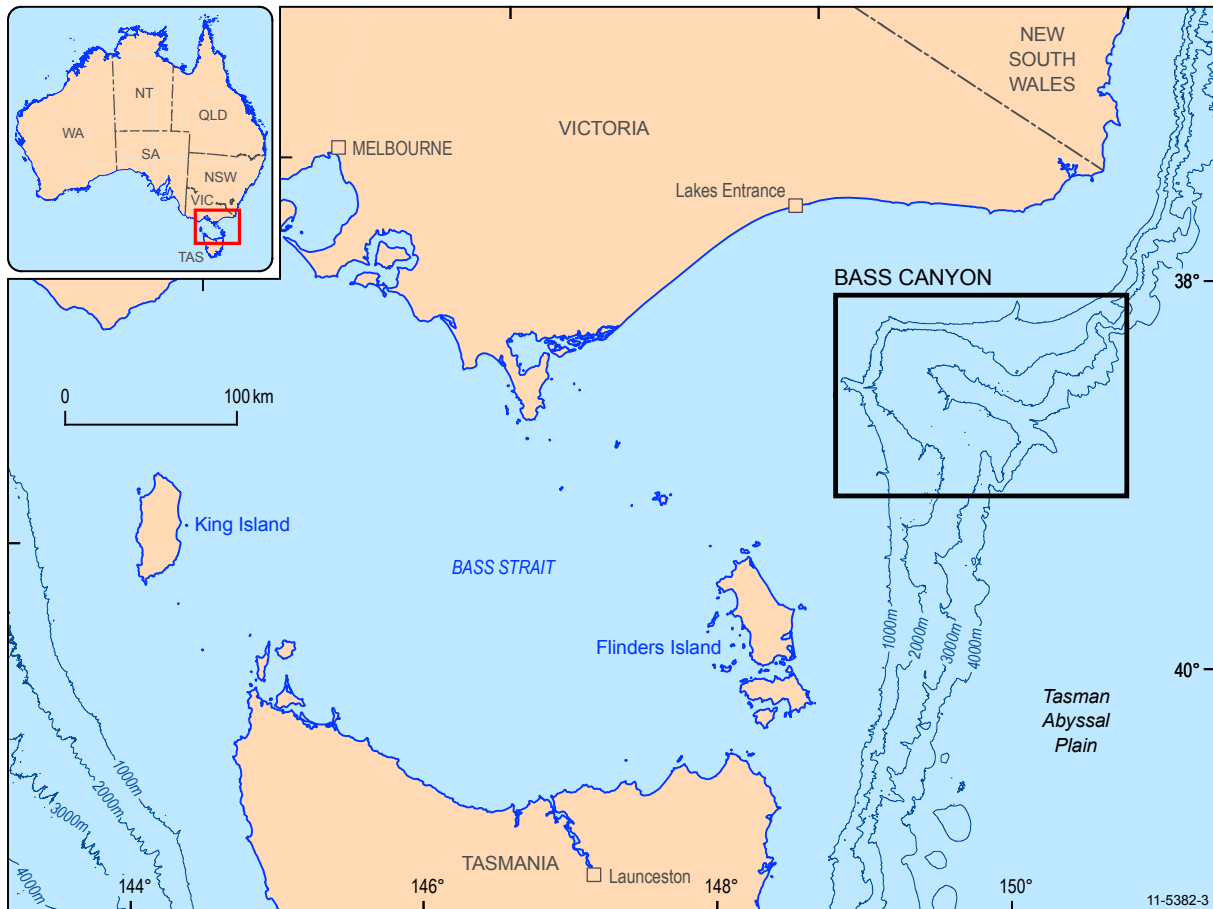


Figure 11: A close up of the continental shelf in Bass Strait. Notice how quickly the depth becomes greater off the edge of the continental shelf.

Once the committee has reviewed the evidence it returns a recommendation to the country, if the country accepts the recommendation (it may reject the committee’s findings and submit another submission) it will then proclaim the extended continental shelf, once proclaimed they may not be changed. An important point to know is the extended continental shelf is the only maritime zone that requires any form of external advice or recommendation. In every other maritime zone the area is decided solely by the country, using UNCLOS as a guide.

Australia was one of the first countries to make a submission to the committee. When the recommendations were handed down Australia accepted them and now claims an additional 2 560 000 square kilometres of continental shelf. Two small sections of claim remain to be settled whilst the continental shelf off the Australian Antarctic Territory, at Australia’s request, has not been considered by the committee at this stage.

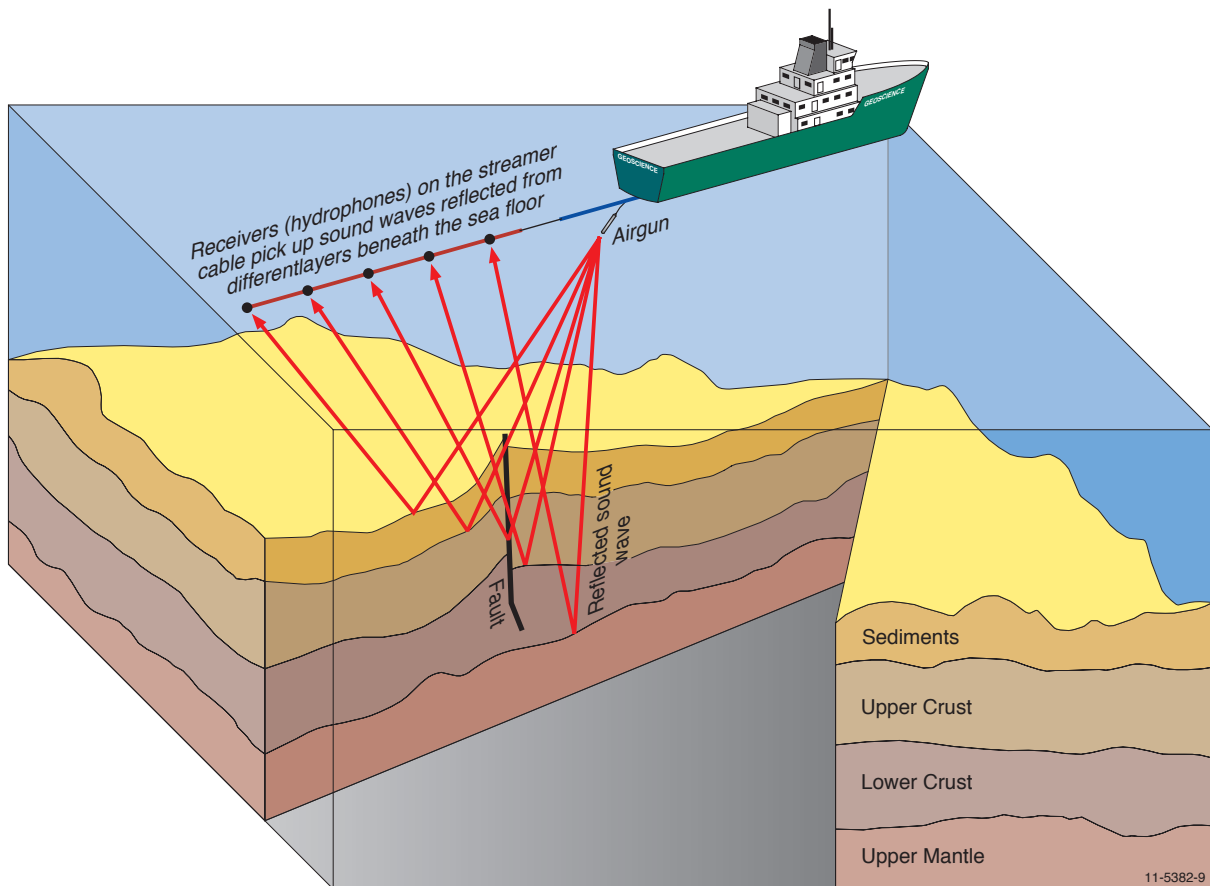


Figure 12: How a ship determines the water depth. Ships carry an echo sounder, a device that uses sound waves to find the water depth. The water depth is calculated by timing how long it takes for an echo to return from the sea bed.

The High Sea and 'The Area'

What about all those regions of sea that do not fall under the jurisdiction of any country? These regions are known as the **high seas** (when referring to the water column) and '**the Area**' when referring to the seabed. Remember that in the extended continental shelf area a country only has resource rights to the seabed and subsoil. Therefore the water above an extended continental shelf is also high seas.

On the high seas the vessels of any country may extract resources (fish, wave power etc), conduct scientific research or lay submarine cables. Similarly, in the Area all countries may utilise the seabed and subsoil resources, however this region is managed by another body formed under UNCLOS, the International Seabed Authority located in Jamaica. Resources extracted from the Area are to be distributed equally to all States. At the present time no resource extraction permits have been issued by the Authority, mainly because economically extracting the resource is difficult at the average water depths found in the Area.

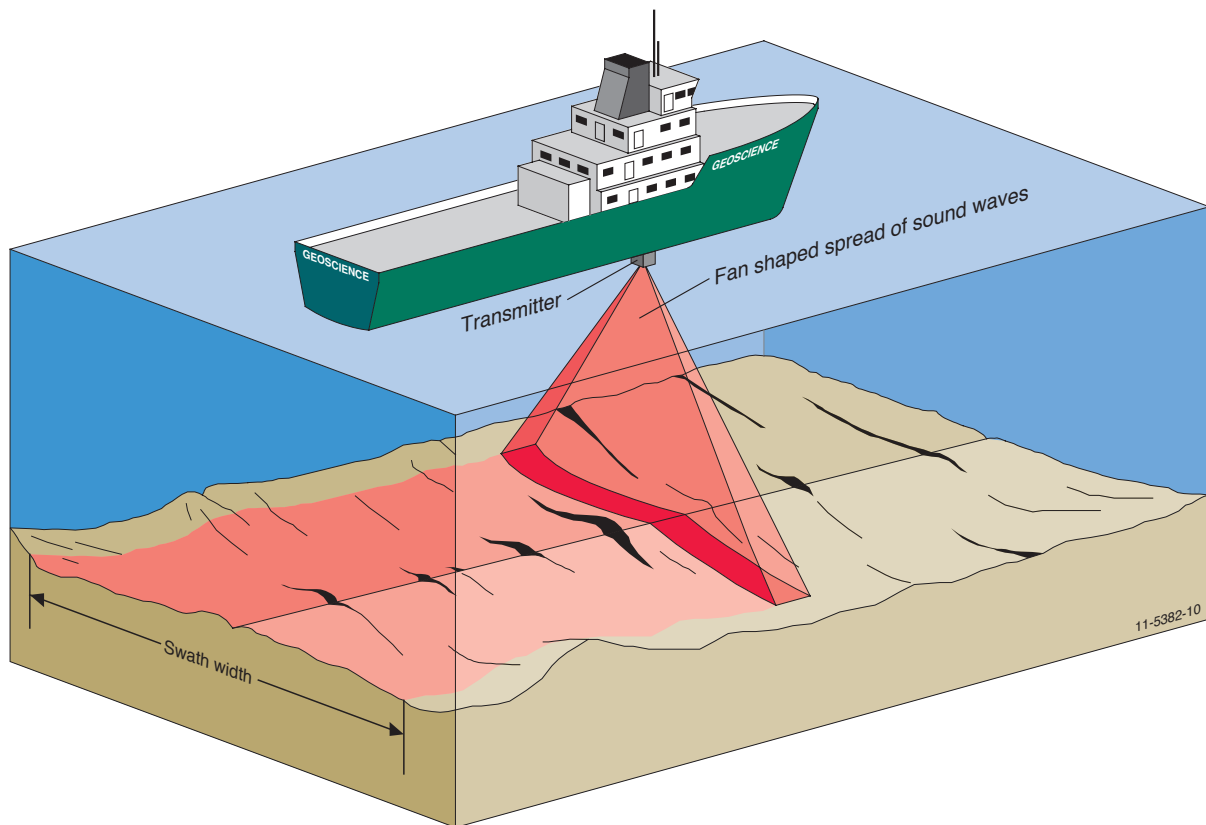


Figure 13: What is below the sea bed? Once again echoes are used. This time an airgun creates a loud bang that travels all the way sea bed and beyond. As the echo returns the ship listens in with hydrophones (special under water microphones). Using these echoes computers can construct an image of the layers in the earth's crust. This data can form part a country's extended continental shelf claim.

MANAGING THE JURISDICTION

In the previous section we looked at how maritime zones are created, and what UNCLOS allows the country, and foreign countries, to do in each zone. In some zones the country has full rights to the resources, in other areas partial rights, whilst in the remaining areas all countries have rights. However, UNCLOS is not all about rights, there is also an emphasis on responsibility. Australia takes its responsibilities in its maritime zones seriously, having developed many national management schemes, international cooperative agreements and bilateral treaties to ensure the best outcome for Australia.

Why is management of the sea so important? Principally because the sea is utilised in a very different manner to land. Take a farm for instance, the land will usually be owned by a farmer, who builds a fence round the farm to raise cattle or crops in defined paddocks. The ownership and use of the land is quite defined, you would not have pedestrians, cars and trucks wandering through a wheat field, or an oil platform in a cattle yard.

In the sea things are very different. For instance, only a country can possess the sea, it cannot be bought or sold by an individual or company. Another difference is that you cannot erect fences to keep wild fish in a certain zone, or to stop foreign ships from entering some areas where Australian fishing vessels catch fish. In short, the principle differences are:

- multiple activities occur in the same region, and
- some resources have to be managed by several countries to ensure sustainable practices are encouraged.

Australia has developed its management plans over many years; this was further helped by UNCLOS which includes articles encouraging countries to develop their own management practices and to participate in regional and international management plans. Here is a list of some programmes the Australian Government has developed or participates in:

- a comprehensive set of fisheries in the Australian Fishing Zone,
- the petroleum acreage release and titles programme,
- participation in Regional Fisheries Management Organisations,
- Australia is a signatory to the Madrid Protocol for the environmental protection of Antarctica, and
- the development of a national representative system of marine protected areas.

This short list gives you some idea of the competing priorities in the maritime jurisdiction. The goal of effective management is to harmonise, as much as possible, the different priorities in our jurisdiction. Let us have a look at a few of the management strategies in place.

Fisheries in the Australian Fishing Zone

Australian fisheries are managed by the Australian Fisheries Management Authority (AFMA). The States and Territories also regulate fishing in the coastal waters adjacent to their coastlines (Figure 14). The objective of managing fisheries is to produce the greatest quantity of fish from an area without causing the number of fish (known as “fish stock”) to decrease.

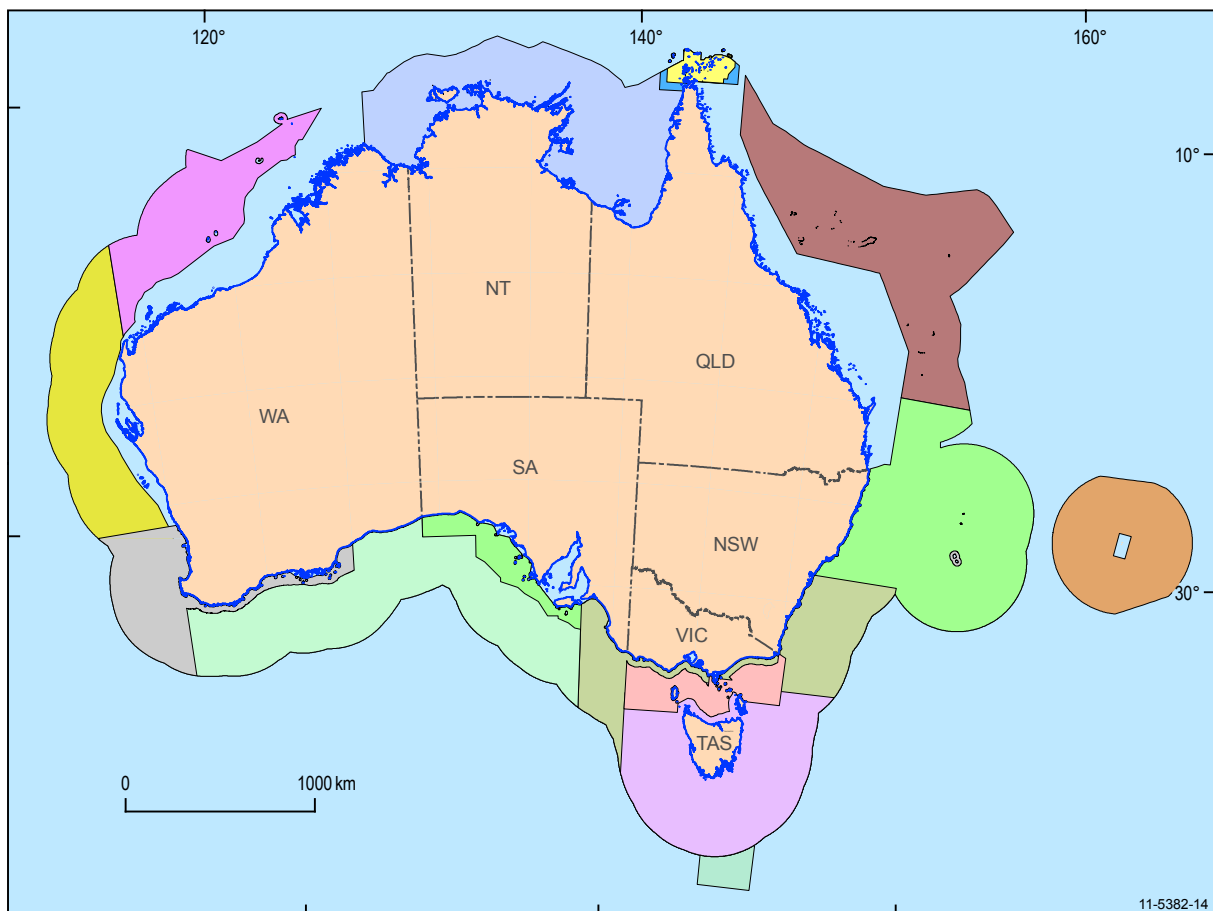


Figure 14: A small selection of Australian Fisheries (each colour represents a different fishery and many will overlap).

The most common method used for managing fisheries is the ‘**permit system**’. This method consists of the coastal country computing the **total allowable catch** of a species (based on scientific studies of the fish available) and then issuing a permit known as **individual transferable quotas**. The total allowable catch is the tonnage of fish that can be caught without affecting the long-term viability of the industry. Each year the total allowable catch is recalculated based on the most recent fish stock data available.

To fish in a Commonwealth Fishery the fishing vessel must meet certain standards and hold an individual transferable quota. Fishing without a valid individual transferable quota is illegal and will lead to prosecution. As stated earlier, the goal of fisheries management is to derive the greatest benefit from the fishery in a sustainable manner. One of the biggest threats to achieving this comes from illegal fishing. Illegal fishing, also known as **illegal, unreported or unregulated fishing** is a major source of concern for many countries as it undermines the good efforts of both fishermen and women and fisheries regulators.

According to the Australian Government Department of Agriculture, Fisheries and Forestry, “by hindering attempts to regulate an otherwise legitimate industry, illegal, unreported or unregulated fishing puts at risk millions of dollars of investment and thousands of jobs as valuable fish resources are wantonly depleted below sustainable levels. Disregard for the environment by way of high seabird mortality and abandonment of fishing gear gives rise to even more concern, as does the general disregard for crew safety on illegal, unreported or unregulated boats” (“Overview: Illegal, unreported and unregulated (IUU) fishing”, 2011). Illegal fishing may not seem like such a big deal to people not involved in the industry, however it can cause enormous damage to fish stocks, and is highly profitable to those who finance it.

Australia takes a very serious view of illegal, unreported or unregulated fishing, having sought to combat it in several ways. The first method is prevention, the second is prosecution. Prevention is achieved by Australian managing the fisheries in its jurisdiction, participating in regional and international management plans and other legal instruments. Prosecution takes the form of Australian vessels patrolling the Australian fishing zone (and a portion of the French fishing zone in the Southern Ocean). Some of these patrols have ended with spectacular chases across the Indian Ocean.

On the 6 February 2002, the Russian registered long-liner ‘Volga’ was arrested by a team (including an Australian Fisheries Management Authority officer) from the Royal Australian Navy vessel HMAS Canberra in the location of Heard Island in the Southern Ocean (Figure 15). On board the vessel was discovered approximately 120 tonnes of Patagonian toothfish believed to have been caught illegally in the Australian exclusive economic zone. The value of the fish seized was greater than that of the vessel.



Figure 15: Fishing vessel *Volga* being boarded by a team from HMAS Canberra, 6 Feb 2002.

Source: Royal Australian Navy.

Offshore Petroleum and Gas

Australia is lucky enough to lay claim to vast oil and gas reserves (Figure 16). A substantial portion of these reserves are located in Australia's maritime jurisdiction. A secure supply of adequate, clean, reliable energy at an affordable price is vital for Australia's economic growth and prosperity.

Fortunately, Australia is well endowed with an abundance of both fossil and renewable fuels. Our energy resources power our homes, cars and industry, and are a key contributor to Australia's economic prosperity. The Australian energy sector directly accounts for five percent of gross industry value-added; 20 percent of total export value; supports a large range of manufacturing industries; and provides significant employment and infrastructure in every state and territory. The demand for energy is increasing as Australia's economy and population grow.

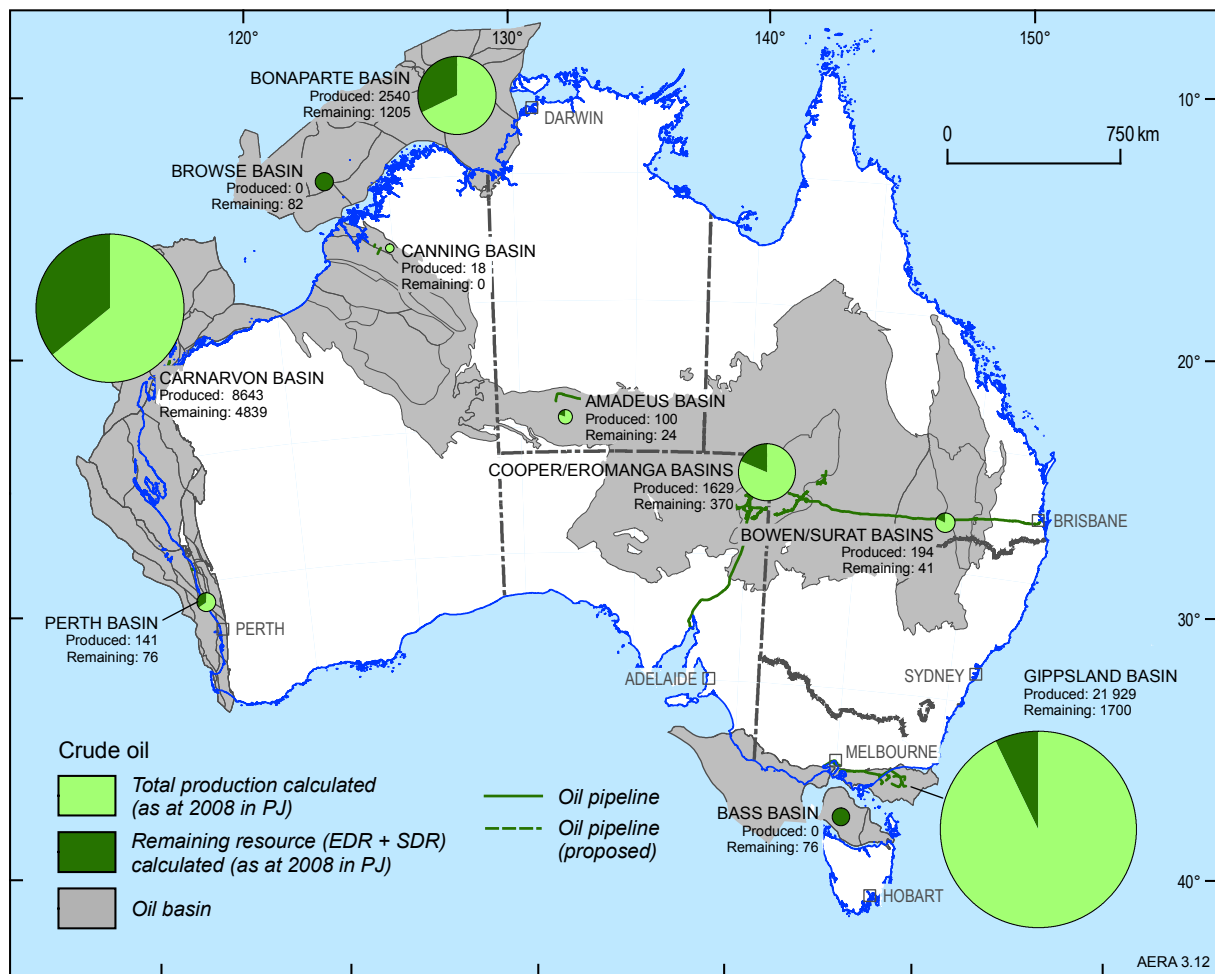


Figure 16: Australia's Oil Basins.

All oil, gas and mineral deposits in Australia are the property of the Crown. However, the Crown does not extract the resources itself; instead commercial companies extract the resource and pay the Australian Government a fee, known as a Royalty. In the maritime jurisdiction, the oil and gas deposits are discovered by government surveying, such as that undertaken by Geoscience Australia.

Once the surveys are completed, petroleum geologists (who are specialists looking for underground formations likely to contain petroleum) select likely petroleum holding areas. These areas are broken down into blocks, and along with the survey data, are released annually for various mining companies to bid for. This process is known as the **offshore acreage release**. The annual release of offshore petroleum exploration acreage is a key part of the Australian Government's strategy to further petroleum exploration in Australia's offshore waters.

The release enables industry to undertake longer term planning, provide certainty in the release process, ensure access to comprehensive pre-competitive geological and geophysical data, and ensure the provision of quality information about issues that may impact on successful applicants.

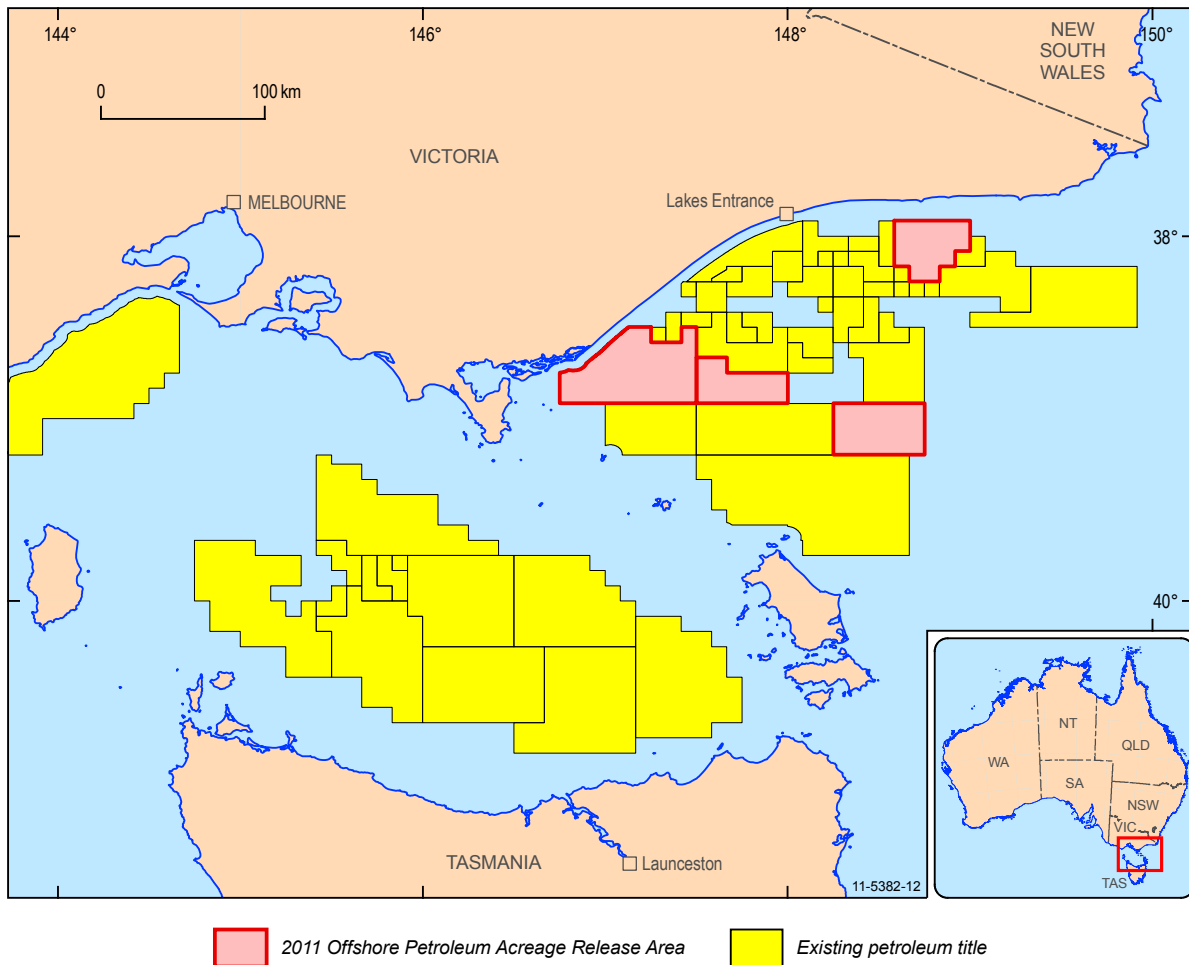


Figure 17: Bass Strait Petroleum Permits and Scallop Fishery

Looking at Figure 17 you will see how the blocks are organised in Bass Strait. The 2011 blocks are pink with earlier blocks in yellow. When new blocks are made available, companies will submit a plan for developing the block for petroleum mining. The government chooses, through a competitive process, which bidder will develop that block.

When a company is successful in its bid it is awarded an extraction licence. This allows the company to extract a resource from the seabed. In Australia the extraction method and what happens to any by-products is also included as part of the licence, thereby ensuring the maximum benefit for the Crown is obtained. A licence does not pass ownership of the resource, or any territory to the company; only the sole right to extract the resource.

Marine Bioregional Planning

Marine bioregional planning is focused on building knowledge of Australia's oceans and improving conservation and sustainable use of our marine resources. It is also aimed at improving management of whole marine ecosystems, including the interactions of people and industry with marine environments and species.

The marine bioregional plans are a little bit like taking the Great Barrier Reef Marine Park and applying it to the Australian maritime jurisdiction (except coastal waters). While the entire jurisdiction will not be a marine park (where would we obtain fish or drill for gas), it will be managed, or if you like, 'organised' to take into account the environment *and* all other users.

The marine bioregional plan process seeks to do this in three ways:

- assist the Australian Government Environment Minister make strategic, consistent and informed decisions under the Commonwealth's Environmental Protection and Biodiversity Conservation Act 1999 in relation to Commonwealth waters if appropriate,
- assist administration of the Environmental Protection and Biodiversity Conservation Act to promote the ecologically sustainable use of the marine environment and its resources, and
- provide a framework for strategic intervention and investment by government to meet policy objectives and statutory responsibilities.

The purposes of the marine bioregional plans are not to exclude all other activities from the planning areas; instead they will now be assessed for their compatibility with the *Environmental Protection and Biodiversity Conservation Act* as well. In certain areas of environmental significance the desire is to create marine parks so as to protect vulnerable species. The marine bioregional plan aims to identify areas of the maritime jurisdiction where the *Environmental Protection and Biodiversity Conservation Act* may apply, and then categorise these areas into special zones (Figure 18).

Currently one marine bioregional planning area has been completed (the South East Region) and another has entered into the consultative phase (the South West Region). During the consultative phase the area is surveyed to see what plants, animals and landforms exist there. Studies and submissions are also made for people and industries that work in the area too. This data is used to write a bioregional plan that is then released for public consultation. Consultation takes the form of workshops and meetings with stakeholders involved. Stakeholders are asked to provide information that should be taken into consideration for the draft bioregional plan.

Once the draft is completed it is released for public consultation for a second time. At this stage the various management zones will have been developed, and will look closer to the finished product. Particular interest at this stage is made to identify the extent to which the marine reserve network proposals are likely to have on any economic or social activities in the region. For instance, some regional towns are heavily dependent on fishing, so by placing a marine park nearby the fishing industry and the small town that relies on it, the regional town/s may be adversely affected. The consultation process therefore can take a while as everyone needs to be given an opportunity to respond to the proposal. The final step in the process is that the plan is formally accepted. While it may appear to be a very inefficient process, public consultation is a critical component as it is the only method to guarantee the plan addresses the needs of as many interested bodies as possible.

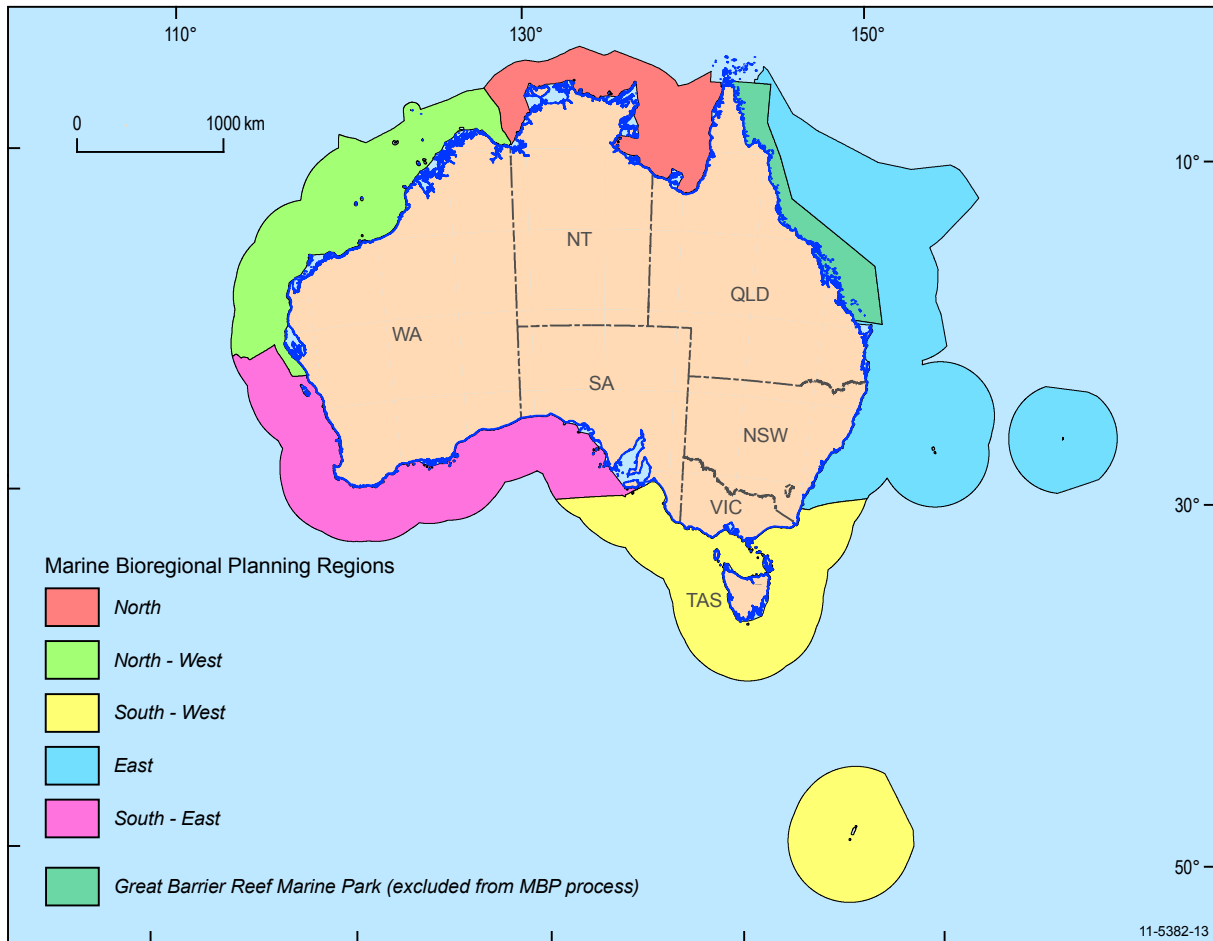


Figure 18: Marine Bioregional planning is in five marine regions: South-west, North-west, North, East and South-east. Source: Department of Sustainability, Environment, Water, Population and Communities.

CONCLUSIONS

What have we learnt?

Firstly, Australian jurisdiction does not just exist over mainland Australia and Tasmania. Australian jurisdiction in fact covers these areas as well as a large portion of Antarctica, several offshore island groups; plus a huge maritime jurisdiction.

Secondly, we know that the rules and laws Australia can apply in its maritime jurisdiction are based on UNCLOS. We have learnt that the jurisdiction is made up of several different types of zones and that these zones are based on the shape of the coastline and their distance out to sea.

Lastly, we studied that the maritime areas need to be managed to produce the best outcome for all ocean users and the environment. Australia has implemented a wide range of management strategies that cover fishing, resource extraction and environmental protection. Managing the oceans is all about finding a balance between conflicting interests.

REFERENCES

Overview: Illegal, unreported and unregulated (IUU) fishing. 2011. Retrieved 14 June. 2011, from the DAFF website:

http://www.daff.gov.au/fisheries/iuu/overview_illegal,_unreported_and_unregulated_iuu_fishing

USEFUL WEBSITES

Australian Antarctic Division: www.aad.gov.au

Australian Fisheries Management Authority:

<http://www.afma.gov.au/resource-centre/teachers-and-students/>

Illegal, Unreported and Unregulated Fishing:

http://www.daff.gov.au/fisheries/iuu/overview_illegal,_unreported_and_unregulated_iuu_fishing

Marine Bioregional Planning: <http://www.environment.gov.au/coasts/mbp/index.html>

GEOSCIENCE AUSTRALIA SOURCES

Australian Maritime Spatial Information System, Geoscience Australia:

<http://www.ga.gov.au/amsis/index.jsp>

Law of the Sea and Maritime Boundary Advice Project, Geoscience Australia:

<http://www.ga.gov.au/marine/jurisdiction.html>

Marine and Coastal Division, Geoscience Australia: <http://www.ga.gov.au/marine.html>

Minerals Division, Geoscience Australia: <http://www.ga.gov.au/minerals.html>

**Have you visited Geoscience Australia's website?
www.ga.gov.au/education**

GLOSSARY

Lowest Astronomical Tide: Tides work in cycles; the most pronounced one happens twice per day (the tide comes in and goes out twice a day). This is not the only cycle for tides, there are actually about seventeen in total. The lowest astronomical tide is the point when all these cycles combine to form the lowest possible tide. This is the tide level used for maritime zone calculations.

Marine National Park: A marine national park is the same as a national park on land, except that it is composed of water and what lies on the sea bed. Marine national parks are used to protect marine species and unique sea bed formations.

Treaty: A treaty is an agreement between two or more countries. The agreement can cover almost any possible situation. Most treaties are agreements between countries that state they will agree to the same set of rules. A treaty only binds the countries that sign it; other countries do not have to agree with the treaty.

Petroleum: Petroleum is a term used to describe a group of naturally occurring oil products extracted from the ground. Originally the term was only used to describe liquid oil, it now includes gas products as well. Petroleum (from the Latin words Petra meaning rock and Oleum meaning oil, essentially meaning 'rock oil') is found in many parts of the world and are the tens to hundreds of million year old products left from the remains of plant life. Many products are extracted from petroleum, including fuels for cars, trucks and aeroplanes, chemicals for dyes, medicines and clothing, as well as gas used to heat homes and cook food.

Petroleum Permit: In the Australian jurisdiction a petroleum permit is a licence for a company to undertake some form of mining activity in a defined area of Australian maritime jurisdiction. The activity is stated on the permit, and may include exploration or extraction. The permit does not mean the company owns the land where the activity is taking place, nor does it own the product being extracted. The permit allows the company to undertake the activity and in return the company pays the Crown (the government) a royalty. A royalty is similar to a tax, the money of which is used by the Australian Government to the benefit of all Australians.

Sustainable Fishing: World fishing stocks are vast, however they are having trouble keeping up with over fishing. Many species of fish will reach an equilibrium (that is, their population will remain stable) if the number of fish taken is set at a level their natural growth can keep up with. Sustainable fishing aims to find out what that fishing level is. The ideal situation is for the population to be stable, whilst still providing fish for human consumption and other fish species. Many countries choose to enter into treaties with other countries to promote sustainable fishing.

Regional Fisheries Management Organisation: An organisation set up by several countries to promote sustainable fishing. The UNCLOS document promotes the use of Regional Fisheries Management Organisations to encourage that the world's oceans are not overfished. Australia belongs to a number of the organisations agreements such as the commission for the conservation of southern bluefin tuna. A Regional Fisheries Management Organisation usually targets a specific species in a specific region, especially fish that travel across the jurisdictions of many countries.

Australia's Maritime Jurisdiction

STUDENT ACTIVITIES

LAW OF THE SEA

Star Land lies in the Tropical Ocean and has two islands within its jurisdiction, which are Coral Island and Fish Island. The two other lands close to Star Land's perimeters are Pearl Land and Seaweed Land.

Like Australia on Earth, Star Land has signed a "Territory Agreement" with other lands saying how they will work out their borders.

The "Territory Agreement" is the same as Earth's Law of the Sea. Answer the following from what you know about the Law of the Sea.

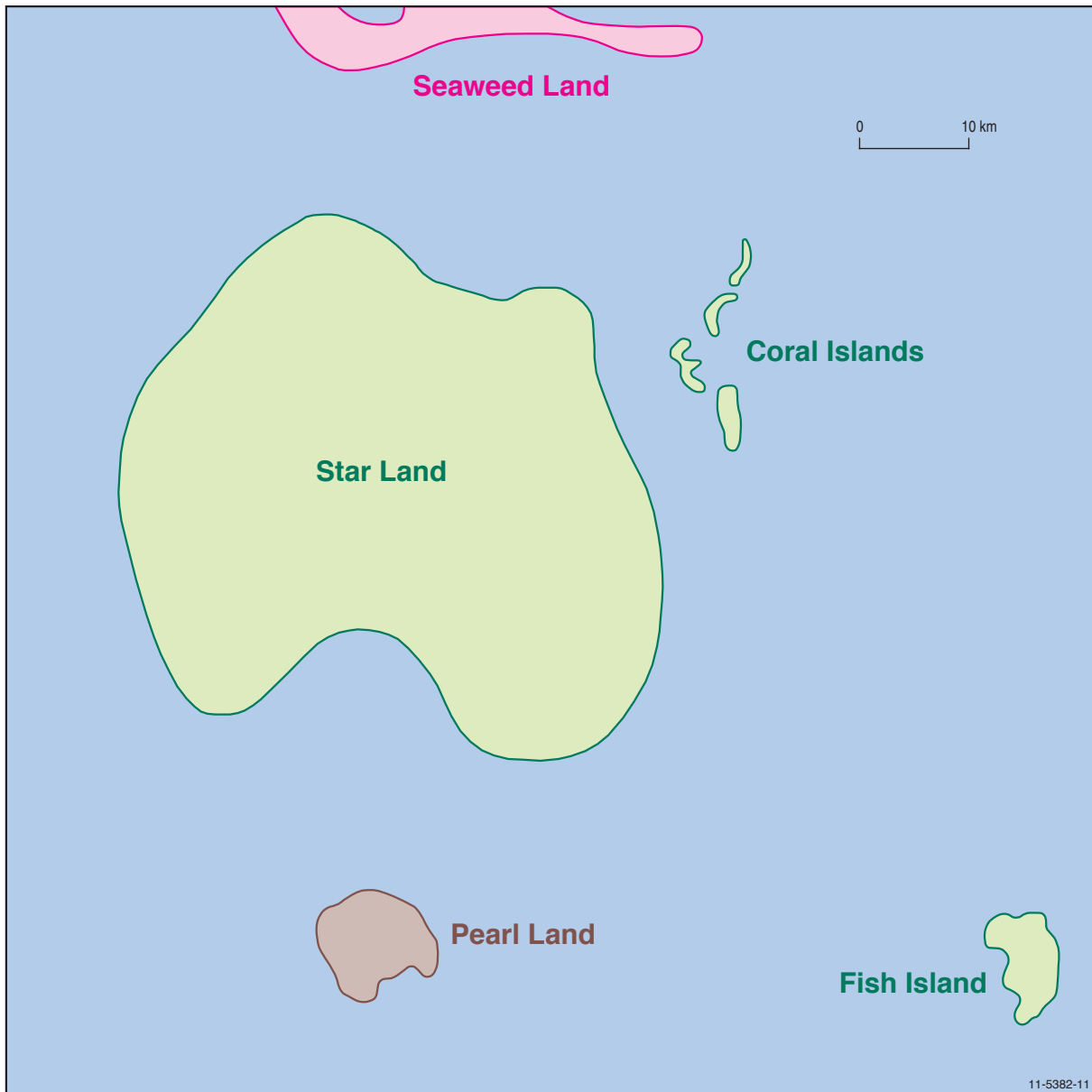
- 1. Star Land's southern neighbour is Pearl Land. These two lands have been friends and traded goods for eons. Who is likely to decide where their border lies?**

- 2. Coral Island is an island in the Star Land's jurisdiction. Residents of Star Land want to build a holiday resort on Coral Island. Do they need permission from the other lands? Why or why not?**

- 3. Residents of Star Land have found rare, deepwater fish about 80 nautical miles (150 kilometres) west of Fish Island, in an area which is part of the Star Land's EEZ. They also notice that the area is being over fished by sailors from distant lands. Can residents of Star Land arrest the sailors and protect the rare fish? Why or why not?**

- 4. Seaweed Land, north of Star Land, is another land. Many of its products are carried by boat to Star Land. Beetle bugs have just been found in Seaweed Land's fruit. This pest could wipe out many of Star Land's fruit trees. Can residents of Star Land stop and search Seaweed Land's boats? Why or Why not?**

STAR LAND IN THE TROPICAL OCEAN



Australia's Maritime Jurisdiction

ANSWER SHEETS

LAW OF THE SEA

1. Star Land's southern neighbour is Pearl Land. These two lands have been friends and traded goods for eons. Who is likely to decide where their border lies?

The best way for two neighbours to find where the boundary between them lies is for them to reach an agreement based on discussions. Sometimes the neighbours will decide on a line halfway between the two, at other times the outcome will depend on cultural or geographic decisions.

2. Coral Island is an island in the Star Land's jurisdiction. Residents of Star Land want to build a holiday resort on Coral Island. Do they need permission from the other lands? Why or why not?

Residents of Star Land do not need to ask for permission from other lands because Coral Island is within the jurisdiction of Star Land. It is only when they make choices outside their sea boundaries that they would need to ask for permission from the other lands. For instance, if Coral Island belonged to Pearl Land instead then they would be the ones to decide what happens on Coral Island.

3. Residents of Star Land have found rare, deepwater fish about 80 nautical miles (150 kilometres) west of Fish Island, in an area which is part of the Star Land's EEZ. They also notice that the area is being over fished by sailors from distant lands. Can residents of Star Land arrest the sailors and protect the rare fish? Why or why not?

Yes. The fish have been found within the exclusive economic zone of Fish Island (remember the exclusive economic zone can extend up to 200 nautical miles (about 370 kilometres) from the shore line). Star Land is not permitted to exclude or harass foreign sailors in their exclusive economic zone, but they can protect the fish (or other resources). In this case Star Land is allowed to arrest foreign vessels suspected of illegal fishing. However, the sailors may appeal this decision, and in any case must be released promptly (the fish and vessel can be held until the trial).

4. Seaweed Land, north of Star Land, is another land. Many of its products are carried by boat to Star Land. Beetle bugs have just been found in Seaweed Land's fruit. This pest could wipe out many of Star Land's fruit trees. Can residents of Star Land stop and search Seaweed Land's boats? Why or Why not?

Yes, if the boats are entering Star Land's contiguous zone (24 nautical miles or about 44 kilometres away from their shore line), residents of Star Land can stop and search any foreign boats in these waters that are attempting to infringe its customs, immigration or quarantine laws.