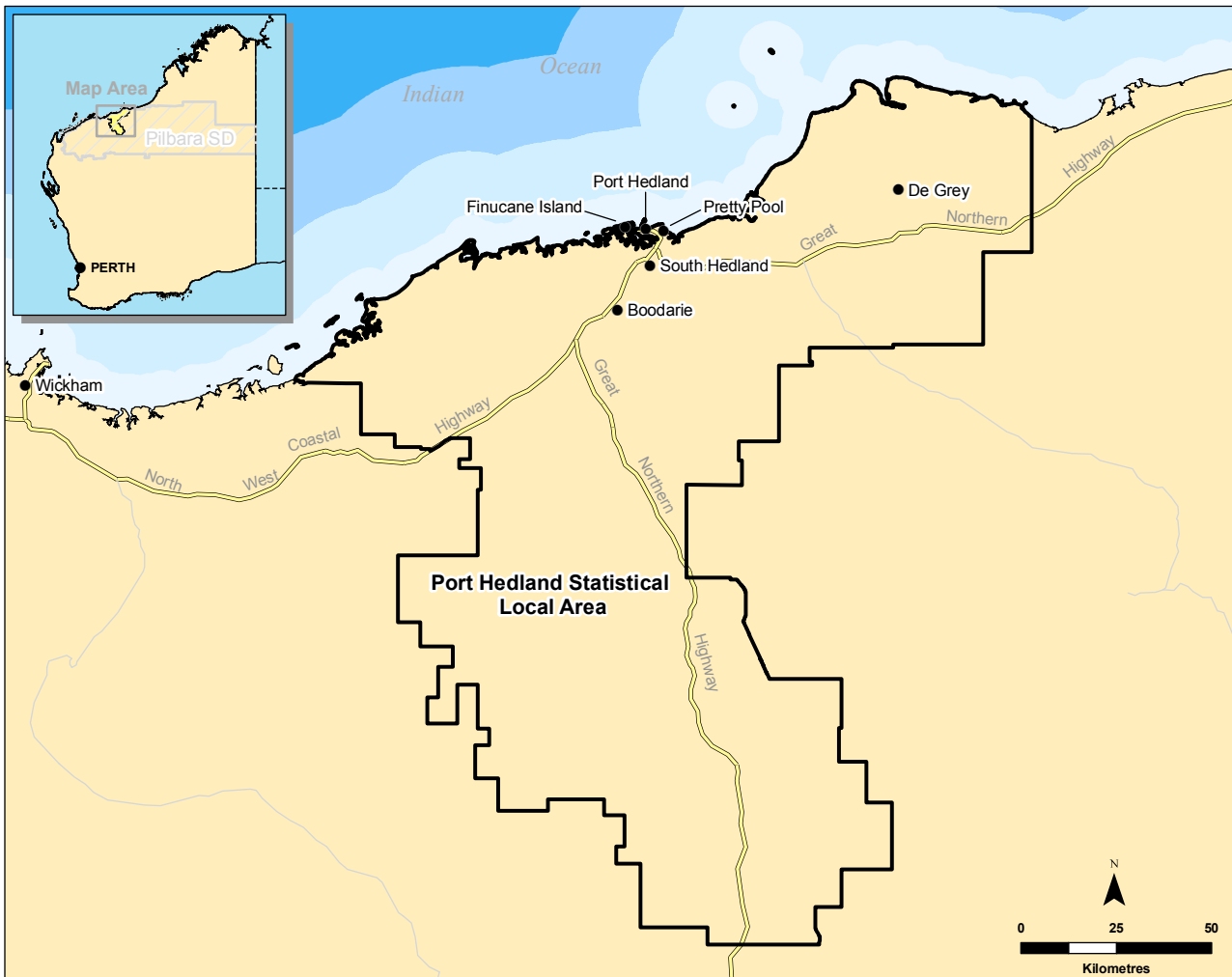


Chapter Six: Port Hedland

6.1 Introduction

Port Hedland Statistical Local Area (here after referred to as Port Hedland) is home to one of the world's largest ports in terms of annual tonnage, Port Hedland. The economic activities within the Port Hedland area are centred on the mining industry. Social activities tend to revolve around sporting clubs, civic organisations and recreational activities based on the assets of the natural environment. For example, recreational fishing, four wheel driving and camping are all popular social activities in Port Hedland. Figure 6.1 shows the location of Port Hedland and key population settlements.

Figure 6.1 Port Hedland Statistical Local Area



Port Hedland is widely perceived to have a growing population due to expansions in the mining sector, with the population boom linked to issues of housing shortages and escalating rents. However, between 1996 and 2006, Port Hedland's population only grew by 0.5%, or by 73 persons (ABS, 2007). In 2006, the population of Port Hedland was recorded at 13,352 persons (ABS, 2007). The housing shortage is due to a combination of factors including:

- Pressures caused by an influx of temporary labour into the region
- Existing issues of land and housing shortages
- High cost of housing development
- Patterns of internal migration, which resulted in increased demand for housing in Port Hedland

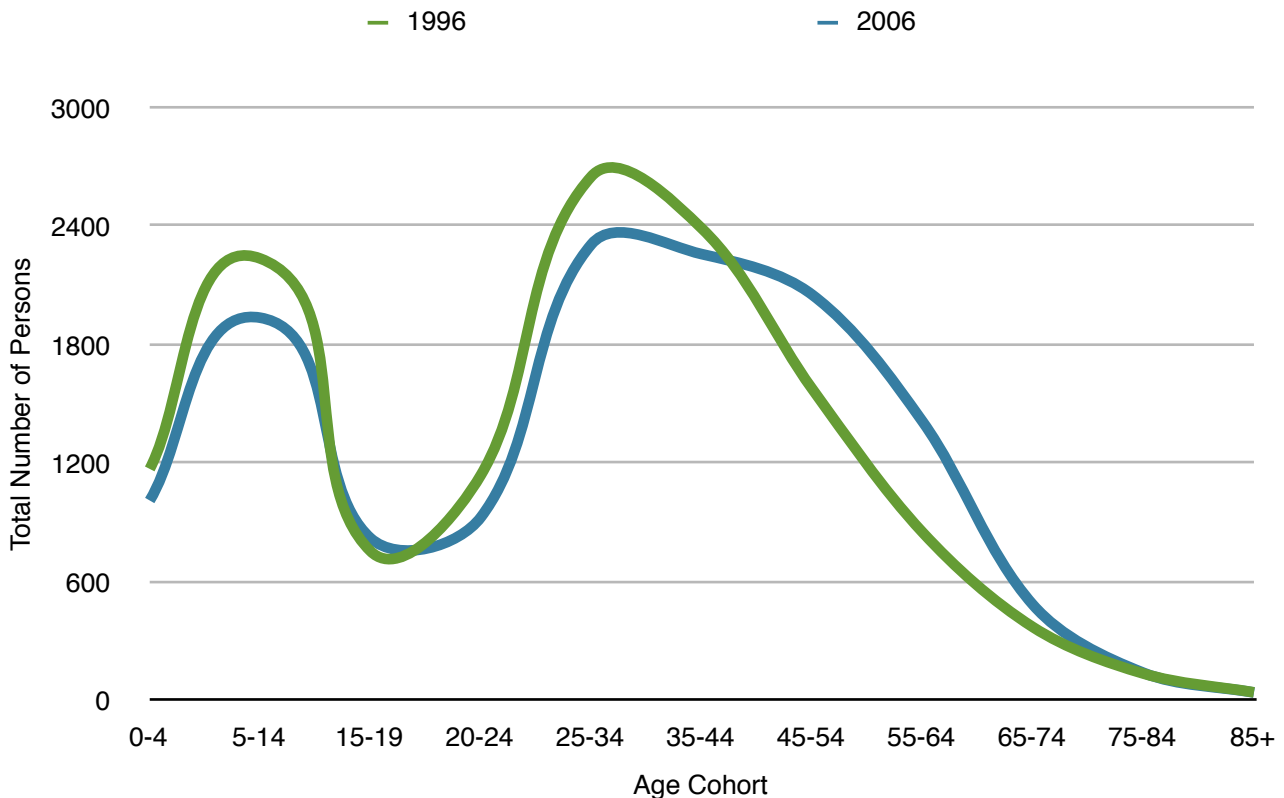
township.

The Western Australian Planning Commission (2005) forecasted that the growth rate of Port Hedland would increase between 2004 and 2031. The averaged annual population growth rate is expected to be 1.1%, an increase from the averaged annual rate experienced between 1996 and 2006 of 0.5% (Western Australian Planning Commission, 2005). It is estimated that Port Hedland will have a population of more than 16,800 persons by 2031.

In 1996, 15% of Port Hedland's population identified as Indigenous Australian (ABS, 2007). In 2006, only 13% of Port Hedland's population identified as Indigenous Australian (ABS, 2007). The rapid increase in cost of living, including rent, have contributed to some Indigenous people having to move out of Port Hedland to seek housing, social support and employment opportunities elsewhere. The high cost of living has also deterred lower income Indigenous families and individuals from moving to the area.

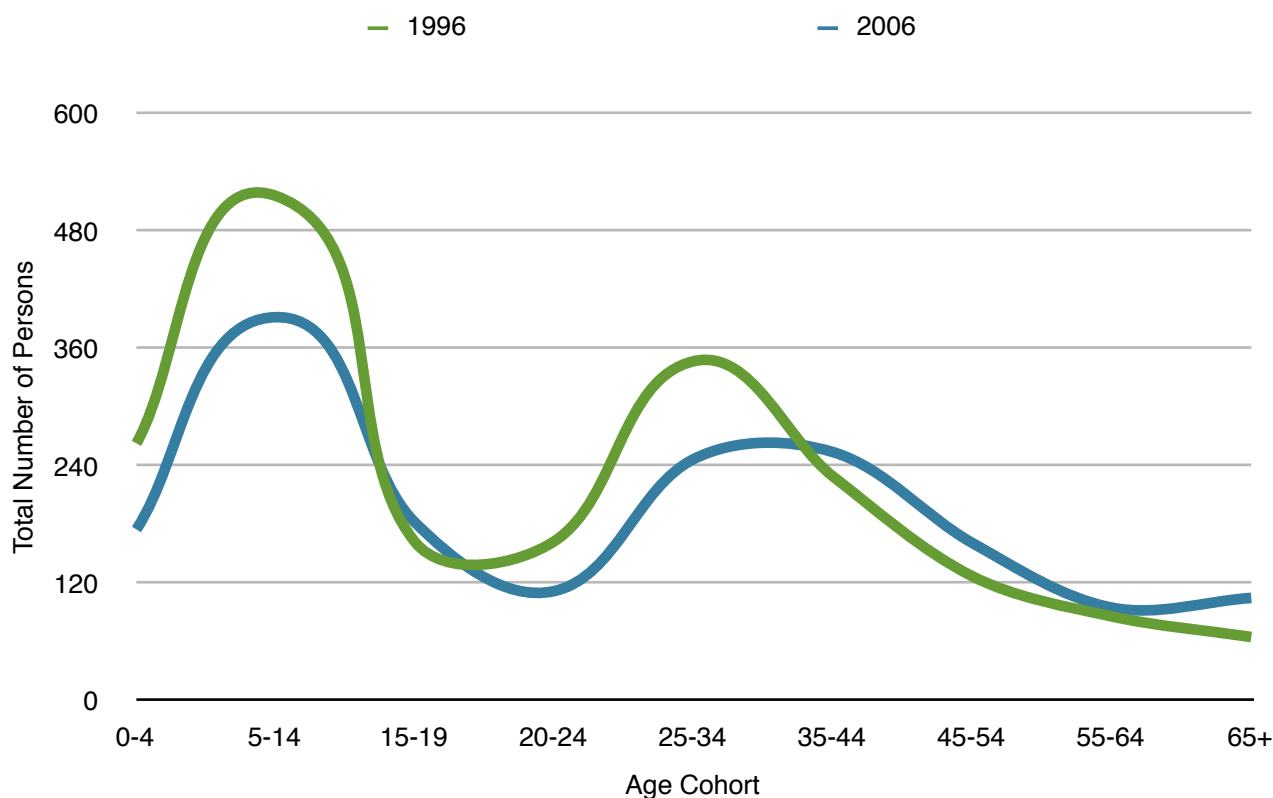
Between 1996 and 2006 Port Hedland experienced a slight ageing trend, with the median age increasing from 30 to 33 years (ABS, 2007). Figure 6.2 illustrates the ageing trends in the Port Hedland population between 1996 and 2006. Figure 6.3 illustrates the ageing trends in the area's Indigenous population between 1996 and 2006. This shows that over the decade the only population growth occurred in the age cohorts above the age of 35. This further supports the suggestion that the high cost of living deterred Indigenous families from moving to the area, and also resulted in some Indigenous families moving away from the area.

Figure 6.2 Ageing Trends in Port Hedland Between 1996 and 2006



Source: Australian Bureau of Statistics, 2007

Figure 6.3 Ageing Trends of the Indigenous Population in Port Hedland Between 1996 and 2006



Source: Australian Bureau of Statistics, 2007

As previously mentioned, mining is a core economic activity in Port Hedland. The industry provides direct employment to over 16% of the labour force (ABS, 2007). The percentage of Port Hedland residents directly employed in the mining industry increased by 1.7% between 1996 and 2006, indicating the ongoing importance of mining to Port Hedland's economy (ABS, 2007). Other core employment sectors include (ABS, 2007):

- Construction (15.4% of the workforce)
- Health care and social assistance (9% of the workforce)
- Retail trade (7.4% of the workforce)
- Education and training (7% of the workforce)

The industries that experienced the largest growth between 1996 and 2006, in terms of percentage, were (ABS, 2007):

- Administration and support services (88.3%)
- Rental, hiring and real estate services (12.3%)
- Manufacturing (12.1%)

The industries that experienced the largest decline between 1996 and 2006, in terms of percentage, were (ABS, 2007):

- Financial and insurance services (-52%)
- Wholesale trade (-47.5%)
- Information, media and telecommunications (-45.6%)

Applying a location quotient analysis to examine employment by industry trends in Port Hedland compared to Australian averaged trends, those industries that had key roles in driving Port Hedland's economy included (ABS, 2007):

- Mining (which experienced an increase in influence)
- Construction (which experienced a decrease in influence)
- Transport, postal and warehousing (which experienced a decrease in influence)
- Rental, hiring and real estate services (which experienced an increase in influence)
- Administrative and support services (which experienced an increase in influence)

Given these trends, it is not surprising that between 1996 and 2006 the diversity of Port Hedland's economy decreased (calculated using Shannon's H statistical method).

Given these broad trends relating to Port Hedland's population and economy, the following section will outline trends in uses of the area's marine and coastal environment.

6.2 Human Uses of the Coastal and Marine Environment

6.2.1 Introduction

Port Hedland's coastline stretches some 300 kilometres and encompasses mangroves, sandy beaches, rocky outcrops and reef systems and withstands an average of four cyclones per annum. The coastal areas of Port Hedland have long been used for pastoral activities, with pastoral leases occupying much of the coastal land. Commercial fishing and pearling are also long established industries in Port Hedland. During the second half of the twentieth century, Port Hedland increasingly attracted investment in mineral exploration, mining and processing. The resources sector is now the largest employer and economic contributor in the region. Port Hedland is home to exporting facilities for BHP Billiton, Fortescue Metals Group and Dampier Salt.

Port Hedland town is the major coastal settlement in the Port Hedland Statistical Local Area. The coastal and marine environment around Port Hedland town is popularly used for recreational activities. The following paragraphs provide further detail on these activities.

6.2.2 Activities at Port Hedland Town

The Port Hedland township is home to Australia's largest port (in terms of total annual tonnes of throughput). Port Hedland Port is a large bulk export port, which supports mining activities within the Pilbara region. In 2008, 1027 ships visited the port, with iron ore being the major export commodity (by tonnage). Many of the activities within the marine and coastal environment around the Port area are associated with the primary functions of the port and include: dredging, road networks, rail networks and storage. Figure 6.4 illustrates the infrastructure associated with Port Hedland Port.

The Port Hedland Port Authority is a large employer in the community and makes a considerable contribution to the region's economy. The port is also an iconic destination for tourists in the Pilbara's coastal region. Around the Port Hedland town there are a number of popular 'lookout' places for observing the operations of the Port. Figure 6.5 illustrates the location of popular 'lookout' places visited by local residents and visitors.

Recreational fishing is a popular activity for local residents in Port Hedland. Visitors to the area also regularly participate in recreational fishing. Boat based fishing is the most popular type of fishing. A dual-lane boat ramp, the 'Captain Bert Madigan Boat Ramp', is located close to the residential area in Port Hedland. The boat ramp is well used and has a large car park and jetty facility. Figure 6.6 illustrates popular recreational fishing locations in the Port Hedland area.

Figure 6.4 Port Hedland Port

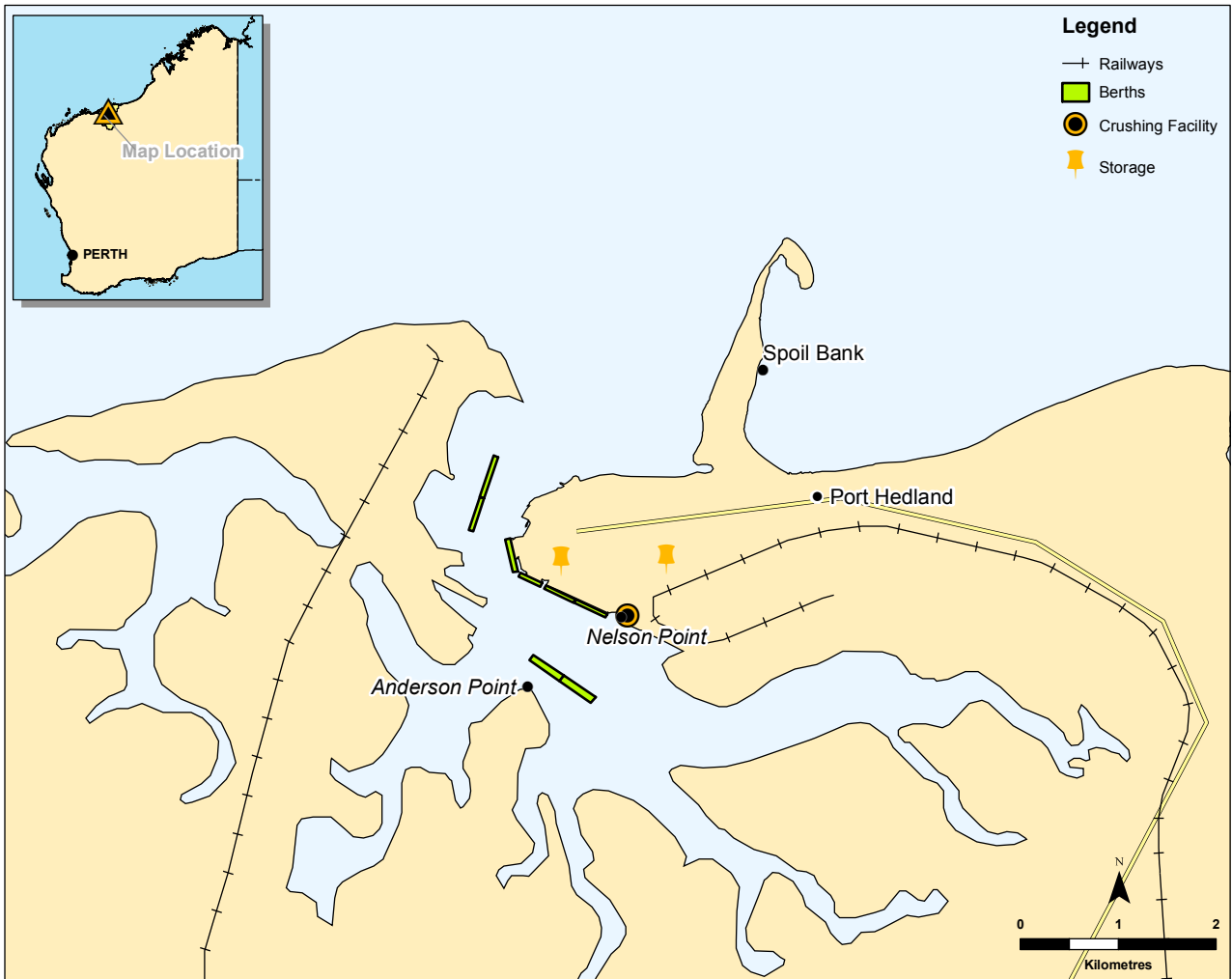


Figure 6.5 Lookout Locations Around the Port Hedland Port

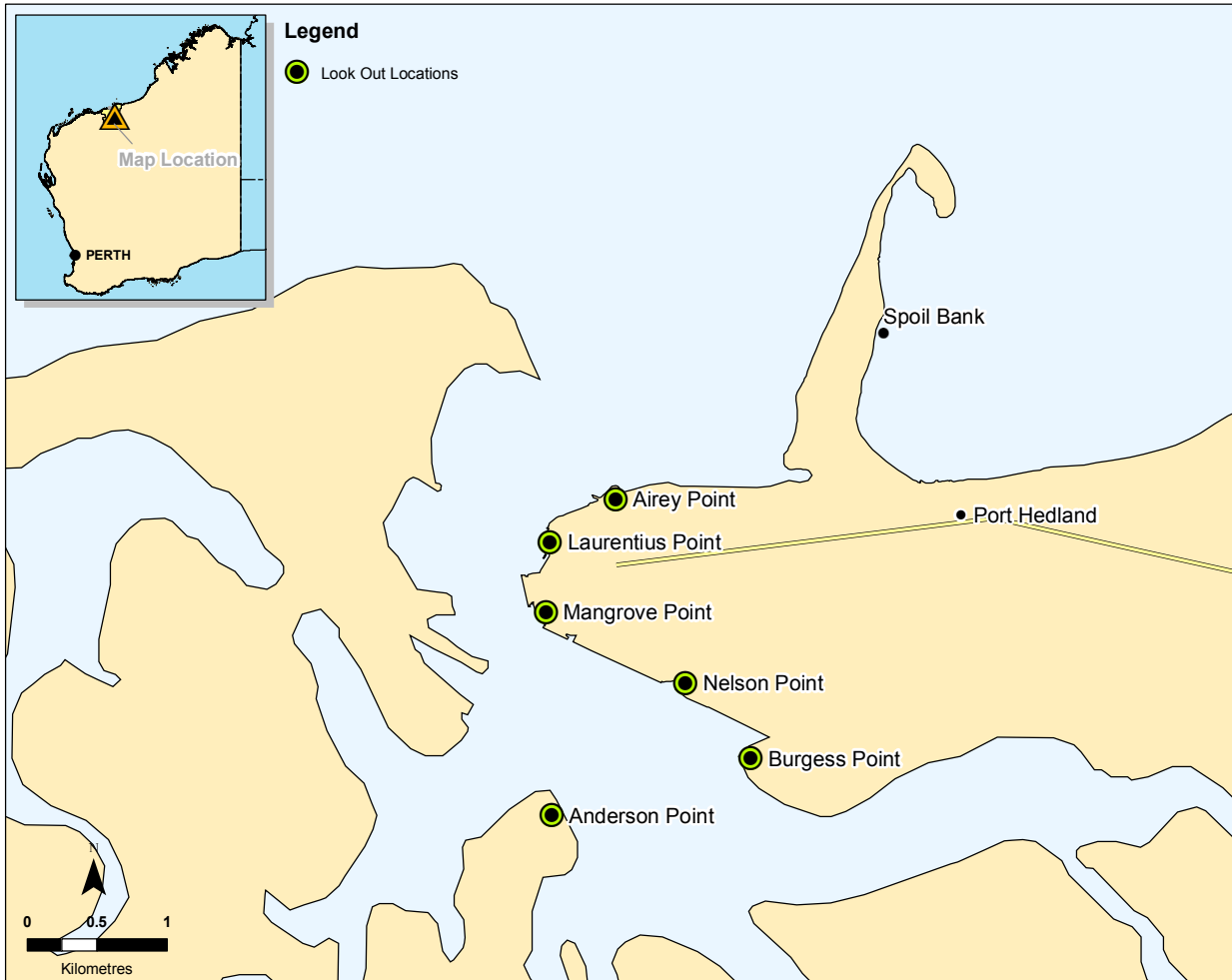
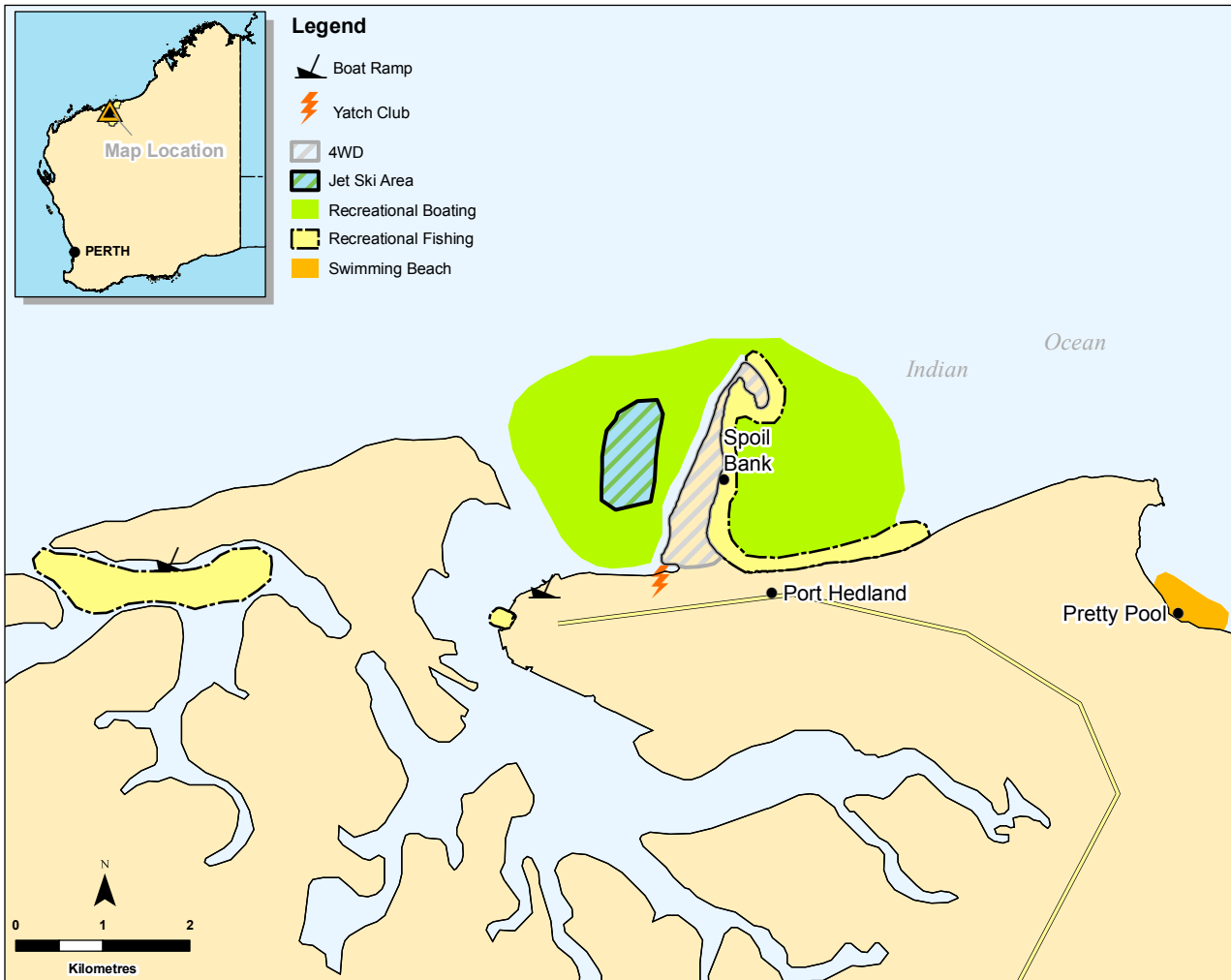


Figure 6.6 Popular Recreational Fishing Locations in Port Hedland



6.2.3 Activities at the Spoil Bank

The Spoil Bank, located near the township of Port Hedland (as shown in Figure 6.5), is one of the most popular locations for recreational activity in Port Hedland’s coastal zone. The Spoil Bank is an artificially constructed sand bank. It was constructed over a period of four decades from the sand dredged from the Port. The Spoil Bank is covered in an array of four wheel drive tracks. The most popular activities at the Spoil Bank include:

- Four wheel driving (vehicles have access to the beach area on the east side of the Spoil Bank as far as Cemetery Beach)
- Recreational fishing
- Kayaking
- Swimming
- Jet skiing and recreational boating
- Nature observation, appreciation and relaxing.

The Spoil Bank has only minimal infrastructure for recreational pursuits, including shade gazebos along the western edge and a designated jet ski area to the west of the bank. The Port Hedland Yacht Club is located at the ‘base’ of the Spoil Bank (see Figure 6.5). The Yacht Club has a clubhouse, parking area, dry dock and a gravel boat ramp into the shallow waters between the groyne and the Spoil Bank. The Yacht Club has approximately 800-900 members.

There are few locations for disposing of rubbish and consequently there is a large amount of visible litter across the Spoil Bank.

As mentioned above, vehicles are restricted from Cemetery Beach. This restriction is to protect turtle nesting areas (particularly for flat backed turtles) from vehicular damage. At the site there are a number of information signs to instruct visitors and local residents how to view the turtles without disturbing them.

6.2.4 Activities at Finucane Island

Finucane Island is home to BHP's iron ore loading and transport area. Many tourists visit this location to witness the loading of the very large iron ore ships.

Finucane Island has a boat ramp, parking area and shade gazebos. Fishers and water skiers who wish to access the Downes Island ski area to the west of Finucane Island use the boat ramp at Finucane Island. Shore based fishing is also popular here as is wildlife observation, particularly of iconic marine mammal species.

6.2.5 Activities at Six Mile Creek

Six Mile Creek is a popular location for four wheel driving and fishing. Boat based recreational fishing is particularly popular in the area, with Mangrove Creek attracting many fishers. There is a boat ramp suitable for small vessels, rubbish bins and an unsurfaced car park. Around this boat ramp there are a number of informal four wheel drive tracks. Despite the provision of rubbish bins near the boat ramp there is a large amount of litter spread across the car park and four wheel drive tracks.

6.2.6 Activities at Pretty Pool

Pretty Pool is located to the east of the Port Hedland township and is a popular location for swimming and relaxing. Where Pretty Pool Creek meets the ocean, there is a car park, picnic and playground area. This area is popularly used for recreation by tourists and local residents. Vehicle access to the beach area is prohibited and restricted through the use of wooden bollards and signs. The second phase of a large residential property development (by Landcorp) is currently under construction at Pretty Pool. In total, 95 lots were sold as parts of stages one and two of the development. The forthcoming third phase of the development will result in a further 35 lots being created.

6.3 Development and Change in Port Hedland

6.3.1 Introduction

The Port Hedland township has experienced rapid population growth as an outcome of the expansion of mining and exploration activities in the Pilbara region. The population growth has created increased demand for housing and infrastructure. As a result, pockets of the Port Hedland community have faced critical housing shortages. The population growth in Port Hedland township has been closely linked to expansions in the mining industry. It is probable that future expansions in this sector will result in further population growth. Conversely, contractions in the mining industry will drive population decline in the Port Hedland township.

The *Hedland's Future Today Action Blueprint* (Town of Port Hedland, 2007) outlined a proposal for future infrastructure development in Port Hedland township. The development works, proposed to commence around 2010, also address community development objectives. Specifically the '*Action Blueprint*' identified the preferred scope and location of a future public marina development at the Spoil Bank. The marina development, estimated to cost \$40 million, would include 50 boat pens and moorings, community recreation facilities and commercial and office buildings.

The Spoil Bank, a popular recreational location for local residents and visitors, is set to undergo considerable development. The Spoil Bank has been identified in the *Port Hedland Land Use Masterplan* (Town of Port Hedland, 2007a) as a preferred location for a caravan park. It is proposed that the caravan park development would contain 'pre-erected' tents, a café, a playground, tennis courts, an artificial lawn bowls facility and a campers' kitchen. The camping ground would be constructed on the eastern side of the Spoil Bank.

If the proposed marina and Spoil Bank developments were to be realised it would provide improved

opportunities for local residents to enjoy the marine and coastal environment.

Along with the marina and Spoil Bank development, it is also proposed that the 'Old Hospital' precinct be redeveloped. Upon the completion of the new hospital in South Hedland, it is proposed that the 'Old Hospital' land be developed into a hotel. The proposed hotel would contain 211 hotel and residential units (Western Australian Planning Commission, 2008b). This development has been proposed as a strategy to address issues of severe shortages of short term residential and tourism accommodation in Port Hedland township. The hotel is expected to include a restaurant, retail spaces and offices.

Given recent approvals from the EPA for expansions to Port Hedland's port facilities, it is probable that Port Hedland will experience increased shipping activity in coming years. Finucane Island is used by BHP Billiton for iron ore loading and exporting from the Yarrrie and Area C mine sites (BHP Billiton, 2008). A proposal from BHP Billiton (approved by the EPA in November 2008) will see operations at Harriet Point (south of Utah Point) expanded. This will result in increased dredging activity, some construction and increased shipping in the area. In April 2008, the EPA also approved a proposal for the development of new berthing facilities at Anderson Point. The proposal, put forward by the Fortescue Metals Group, will see the dredging of a part of the Port Hedland Port to enable the construction of the loading wharf. The EPA also approved (in January 2009) a proposal by the Port Hedland Port Authority to construct a new shipping berth and ore stockpile facility at Utah Point on Finucane Island. This development will see the construction of an access road, a stockyard and a wharf (Port Hedland Port Authority, 2009).

Facilities for recreational use are also likely to be upgraded at Finucane Island, Cemetery Beach and Redbank. At Finucane Island, \$300,000 of funding has been made available for an upgrade of the boat ramp (Town of Port Hedland, 2008). At Cemetery Beach, a proposal for a Turtle Interpretive Boardwalk has attracted some funding from the State Government of Western Australia (Ford, 2007). At Redbank, the *Hedland's Future Action Blueprint* proposed the construction of an Environmental Mangrove Walk. These developments would likely result in increased visitation to the localities by both tourist and local residents.

The marine and coastal environment, particularly around the Port Hedland township and Port area, is a popular location for recreational and industrial activity. Proposed development for the region indicates that recreational and industrial activity will grow in this area. Given this probable increase in activity it is important to consider how current uses of the coastal and marine environment might influence the condition of the natural environment. Within Port Hedland, there are numerous agencies responsible for managing various aspects of the marine and coastal environment. The following section presents a summary of resource users' and resource managers' key concerns about current uses of the marine and coastal environment within Port Hedland.

6.3.2 Users' and Managers' Key Concerns Regarding the Use of the Marine and Coastal Environment

6.3.2.1 Use of the Spoil Bank

The Spoil Bank is a popular location for residents in Port Hedland (particularly residents of Port Hedland township) and visitors. Interview participants were concerned that a recent increase in the use of the area has resulted in an increase in the misuse of the natural environment. Specifically, interview participants suggested that the area had a problem with unregulated fourwheel driving and litter. Some interview participants suggested that the Spoil Bank needed to be further developed, with infrastructure provided to minimise the environmental impact of activities.

Other interview participants, however, suggested that the Spoil Bank should be allowed to erode through natural processes. This would enable the natural reef system, which is currently covered by the spoil bank, to recover. It was suggested that the reef system could potentially form a key tourist attraction in the Port Hedland area, and also a location for residents to snorkel, dive and fish.

6.3.2.2 Effects of Future Development on Turtle Nesting

Interview participants expressed concern about the impact of lighting from industrial facilities and residential developments in the coastal area on turtle nesting activities. It was widely perceived that lighting from industrial facilities and residential developments could restrict the areas where turtles could nest, which, in turn, would have negative consequences for the area's turtle population. Interview participants noted that the Pretty Pool residential development was a preferred style of development as it included a series of 'turtle

friendly' initiatives. These initiatives included specialised lighting, dune revegetation and measures to prevent vehicle access to nesting areas. Interview participants suggested that future development should have to include similar 'turtle friendly' measures.

6.3.2.3 Environmental Impact of Proposed Canal Residential Developments

In 2008, Landcorp called for expressions of interest to develop residential properties on the land bordered by Cooke Point Road, Styles Road and Wilson Street in Port Hedland township (Landcorp, 2008). This development was proposed to be located to the south of Pretty Pool and adjacent to Four Mile Creek. Interview participants reported there was much concern from residents about 'rumours' a canal style residential suburb could be developed as part of the Landcorp development. Residents were concerned about the environmental and public health implications of such a development. Specifically residents were concerned that a canal development could negatively impact mangroves in the surrounding area. There was also concern that due to the large tidal fluctuations in Port Hedland mosquitoes could be attracted. Interview participants were concerned there was not a clear set of planning guidelines to restrict this type of development.

6.3.2.4 Inadequate Policy to Guide Coastal and Marine Developments

Interview participants noted that recent and proposed development in the coastal area were not guided by a clear overall strategy or plan for the area. Interview participants perceived coastal planning and development to be ad hoc. Some participants suggested that the lack of an overall coastal development/ management strategy had caused some development opportunities to be overlooked. The lack of a development/ management strategy also limited the capacity for community groups to access some funding schemes. A Coastal Management Plan was produced for Port Hedland in 2004. This was reviewed in 2007 by an independent consultant. Interview participants suggested that the plan is not being used to guide coastal development, with only four of the 30 projects suggested in the 2004 plan expected to be completed by 2009.

6.3.2.5 Impact of Shipping Activities and The Port Expansion on Mangroves Around the Port Hedland Township

Interview participants were concerned that shipping and other activities related to mining had caused damage to the mangroves around the Port Hedland township. The mangroves around the Port Hedland township are a popular destinations for residents and visitors who participate in recreational fishing and bird watching. Interview participants suggested that over the last decade, there had been a noticeable contraction in the spatial extent and density of the mangroves. This decline was associated with a decline in fish numbers and size in the mangrove areas.

6.3.3 What is Being Done?

As outlined in section 6.3.1, there are a variety of development projects planned for the Port Hedland area. There are also many initiatives planned, or underway, to ensure the ongoing environmental sustainability of the marine and coastal environment. A number of initiatives, either planned or underway, specifically address various aspects of the users' and managers' key concerns regarding the use of the marine and coastal environment. This section lists these initiatives, and notes potential gaps where further research, monitoring or infrastructure development might be required.

6.3.3.1 Proposed Initiatives to Address Concerns Regarding Uses of the Spoil Bank

The Port Hedland Land Use Masterplan (Town of Port Hedland, 2007a) outlines a proposal for the redevelopment of the Spoil Bank. The redevelopment would see infrastructure development on the Spoil Bank to enable a caravan park to be established. The caravan park would contain 'pre-erected' tents, a café, a playground, tennis courts, an artificial lawn bowls facility and a campers kitchen. A camping ground would be constructed on the eastern side of the Spoil Bank. This development would limit access to parts of the Spoil Bank and result in uses being more regulated. Such a development could minimise issues of misuse of the natural resources, damage from unregulated four wheel driving and litter problems.

The development would, however, not address the proposal that the Spoil Bank should be left to erode so as to enable the natural reef structure under the Spoil Bank to recover.

6.3.3.2 Impact of Shipping Activities and The Port Expansion on Mangroves Around the Port

Hedland Township

The possible negative impact of industrial activities on the mangroves around Port Hedland has been identified by the Department of Fisheries through the National Heritage Trust funded study entitled 'Natural Resource Condition Monitoring for the Pilbara and Kimberley Regions – Scoping Project'. Through this study researchers identified the need for research to examine the impact of industrial activities on mangroves. The Department of Fisheries are currently investigating methods to enable remote monitoring of mangroves using remote sensing techniques.

6.4 Conclusion

Port Hedland is a region dominated by mining, with the town of Port Hedland being home to Australia's largest export port. Despite a large growth in the region's mining industry and associated workforce over the decade from 1996 to 2006, the overall population of the region remained stable. This is due to the fact that much of the region's mining workforce is fly-in-fly-out. The coastal town of Port Hedland, however, reportedly experienced an overall population growth, and a growth in visitors (both fly-in-fly-out workers and travellers). Visitors are attracted to the area due to lifestyle and recreation opportunities, many of which occur within the marine and coastal environment.

Port Hedland's marine and coastal environment is a critical resource for the mining sector and also a popular site for recreational and cultural activities. Many of the activities within Port Hedland occur around the town of Port Hedland. Activities and developments within Port Hedland's marine and coastal area are regulated by a number of different plans, strategies and regulations. Western Australian State Government agencies including the Department of Fisheries, Department of Environment and Conservation and the Western Australian Planning Commission have major roles in developing and enforcing these plans, strategies and regulations. Appendix C provides a list of these management documents.

Taking into account the scope and geographical extent of the management activities already underway, or planned, for Port Hedland's coastal and marine environment, this study sought to identify users' and managers' ongoing priority concerns about the use and management of the area.

In Port Hedland, and particularly in the town of Port Hedland, users and managers had a number of ongoing concerns about the use and management of the marine and coastal environment. Most notable was the concern about a lack of an overall strategy guiding development in the coastal area. Also of concern was the current use and proposed development of the Spoil Bank and the environmental impact of development on turtles and mangroves. Chapter Seven provides further discussion on and outlines possible approaches for addressing them.