Integrated Coastal Management to Sustainable Coastal Planning

Thesis submission for Doctor of Philosophy

Barbara Jean Norman
Bachelor Town and Regional Planning (University of Melbourne)
Master of Environmental Law (ANU)

School of Global Studies, Social Science and Planning
College of Design and Social Context
RMIT University
October 2009
Declaration

I declare as the candidate that:

a) Except where due acknowledgement has been made, the work is that of the candidate alone;
b) The work has not been submitted previously, in whole or in part, to qualify for any other academic award;
c) The content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program;
d) Any editorial work, paid or unpaid, carried out by a third party is acknowledged; and
e) Ethics procedures and guidelines have been followed.

Barbara Jean Norman

Acknowledgements

I wish to acknowledge my deep appreciation to the following people:

Professors Mike Berry and John Fien (Supervisors)
Frans Timmerman (Editor)
David Tatnall (Photographer)
Amanda and Lyndsay Neilson, Jean and Emma Downing, Colin, Philip, Warwick Norman, Claire Meney and Shelley (Family)
Helen Martin (Chair, Gippsland Coastal Board)
Duncan Malcolm (Chair, Gippsland Coastal Board till 30 June 2009)
Liz Johnstone (Chair, Central Coastal Board)
Simon Haber and John Ginivan (Department of Planning and Community Development)
Stuart Ord (Parks Victoria)
Brian Martin (Natural resource management adviser)
Contents

Summary of Research 1

1. Introduction 2
   1.1 Purpose of research 2
   1.2 Research questions 6
   1.3 Research design 7
      1.3.1 Data gathering tools 7
      1.3.2 Steps in methodology 9
      1.3.3 The Victorian coastal case studies 10
      1.3.4 The focus groups 14
   1.4 Structure of thesis 15
   1.5 Scope and limitations of research 17

2. Coastal planning for urban growth and climate change 18
   2.1 Integrated coastal management 18
   2.2 The origins and development of ICM 19
      2.2.1 Global origins 19
      2.2.2 Australian origins 24
      2.2.3 Current definitions of ICM 31
   2.3 Global developments 34
      2.3.1 Coastal urbanisation 35
      2.3.2 Coastal planning and climate change 37
   2.4 Australian developments 43
      2.4.1 Coastal planning in Australia 43
      2.4.2 Australian coastal urbanisation 52
      2.4.3 Australian planning for climate change adaptation 56
      2.4.4 Summary 60
   2.5 Future challenges for ICM 62

3. Point Nepean: Case Study 1 67
   3.1 Point Nepean — a coastal headland 67
      3.1.1 Introduction 67
      3.1.2 The history of Point Nepean 69
      3.1.3 The coastal environment 70
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.4</td>
<td>Planning the ‘integration’ of Point Nepean</td>
<td>73</td>
</tr>
<tr>
<td>3.1.5</td>
<td>Coastal and land use activity</td>
<td>78</td>
</tr>
<tr>
<td>3.1.6</td>
<td>Coastal governance arrangements</td>
<td>79</td>
</tr>
<tr>
<td>3.2</td>
<td>Current coastal planning framework</td>
<td>80</td>
</tr>
<tr>
<td>3.3</td>
<td>Coastal planning and management issues</td>
<td>84</td>
</tr>
<tr>
<td>3.3.1</td>
<td>Community engagement</td>
<td>85</td>
</tr>
<tr>
<td>3.3.2</td>
<td>Indigenous and cultural heritage</td>
<td>86</td>
</tr>
<tr>
<td>3.3.3</td>
<td>Integrated public land management</td>
<td>86</td>
</tr>
<tr>
<td>3.3.4</td>
<td>Environmental education</td>
<td>87</td>
</tr>
<tr>
<td>3.4</td>
<td>Implications for the theory and practice of ICM</td>
<td>88</td>
</tr>
<tr>
<td>4.1</td>
<td>The Gippsland Lakes, a coastal lakes system</td>
<td>92</td>
</tr>
<tr>
<td>4.1.1</td>
<td>Introduction</td>
<td>92</td>
</tr>
<tr>
<td>4.1.2</td>
<td>A brief history of the Gippsland Lakes</td>
<td>94</td>
</tr>
<tr>
<td>4.1.3</td>
<td>The coastal environment</td>
<td>95</td>
</tr>
<tr>
<td>4.1.4</td>
<td>Coastal and land use activity</td>
<td>97</td>
</tr>
<tr>
<td>4.1.5</td>
<td>Coastal governance arrangements</td>
<td>98</td>
</tr>
<tr>
<td>4.2</td>
<td>Current coastal planning framework</td>
<td>99</td>
</tr>
<tr>
<td>4.3</td>
<td>Coastal planning and management issues</td>
<td>107</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Coastal governance</td>
<td>107</td>
</tr>
<tr>
<td>4.3.2</td>
<td>Environmental protection of the lakes</td>
<td>109</td>
</tr>
<tr>
<td>4.3.3</td>
<td>Regional planning</td>
<td>110</td>
</tr>
<tr>
<td>4.3.4</td>
<td>Climate change and coastal inundation</td>
<td>113</td>
</tr>
<tr>
<td>4.4</td>
<td>Implications for the theory and practice of ICM</td>
<td>114</td>
</tr>
<tr>
<td>5.1</td>
<td>The Geelong region — a coastal urban growth region</td>
<td>117</td>
</tr>
<tr>
<td>5.1.1</td>
<td>Introduction</td>
<td>117</td>
</tr>
<tr>
<td>5.1.2</td>
<td>A brief history of planning the Geelong region</td>
<td>119</td>
</tr>
<tr>
<td>5.1.3</td>
<td>The coastal environment</td>
<td>124</td>
</tr>
<tr>
<td>5.1.4</td>
<td>Coastal and land use activity</td>
<td>126</td>
</tr>
<tr>
<td>5.1.5</td>
<td>Coastal governance arrangements</td>
<td>129</td>
</tr>
<tr>
<td>5.2</td>
<td>Current coastal planning framework</td>
<td>132</td>
</tr>
<tr>
<td>5.3</td>
<td>Coastal planning and management issues</td>
<td>135</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>5.3.1 Urban growth management</td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>5.3.2 Regional governance</td>
<td>139</td>
<td></td>
</tr>
<tr>
<td>5.3.3 Planning for climate change</td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>5.4 Implications for the theory and practice of ICM</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>6. From ICM to sustainable coastal planning</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>6.1 Introduction</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>6.2 The research findings</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>6.2.1 Coastal pressures</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>6.2.2 Coastal impacts</td>
<td>151</td>
<td></td>
</tr>
<tr>
<td>6.2.3 Coastal issues</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>6.3 Implications for ICM</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>6.4 Beyond ICM</td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>6.5 Sustainable coastal planning</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>6.6 Conclusion</td>
<td>176</td>
<td></td>
</tr>
<tr>
<td>7. Conclusions</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>7.1 Introduction</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>7.2 Integrated coastal management</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>7.3 The Victorian experience</td>
<td>181</td>
<td></td>
</tr>
<tr>
<td>7.4 A pathway to sustainable coastal planning</td>
<td>183</td>
<td></td>
</tr>
<tr>
<td>7.5 Further research questions</td>
<td>184</td>
<td></td>
</tr>
<tr>
<td>7.6 Conclusion</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>References</td>
<td>187</td>
<td></td>
</tr>
<tr>
<td>Glossary</td>
<td>206</td>
<td></td>
</tr>
<tr>
<td>Acronyms</td>
<td>208</td>
<td></td>
</tr>
<tr>
<td>Appendices</td>
<td>211</td>
<td></td>
</tr>
<tr>
<td>1. Key coastal governance arrangements in Australia, 30 June 2009</td>
<td>211</td>
<td></td>
</tr>
<tr>
<td>2. Victorian coastal management system 2009</td>
<td>212</td>
<td></td>
</tr>
<tr>
<td>3. Victorian State Planning Policy Framework</td>
<td>213</td>
<td></td>
</tr>
<tr>
<td>4. Ethics Research Approval by RMIT University</td>
<td>214</td>
<td></td>
</tr>
<tr>
<td>5. Supporting publications, conference papers and presentations</td>
<td>215</td>
<td></td>
</tr>
</tbody>
</table>
Tables
2.1 International agreements affecting the coastal zone signed by Australia 20
2.2 Global events influencing the development of ICM 24
2.3 Major national influences on the development of ICM 26
2.4 The Coastal Zone Inquiry 27
2.5 National coastal management and planning groups 2009 45
2.6 Coastal spaces recommendations 50
3.1 Key planning and coastal management legislation in Victoria 81
6.1 Major operating wind farms 150
6.2 Coastal pressures, impacts and issues from research findings 153
6.3 Planning for coastal inundation 156
6.4 Limitations of ICM 161
6.5 Summary of implications for ICM from case studies 162
6.6 From ICM to sustainable coastal planning 165

Figures
2.1 Global coastal urbanisation 36
3.1 Point Nepean 67
3.2 Mornington and Western Port Biosphere Reserve 71
4.1 Lakes Entrance Gippsland 92
5.1 City of Geelong on Port Phillip Bay 118
5.2 Estimated resident population for the Geelong region 127
5.3 The regional governance structure for G21 141
6.1 The Bellarine Peninsula in the Geelong region 149
6.2 Implementation of coastal settlement boundaries 155

Maps
1.1 Location of the three cases studies: Gippsland Lakes, Point Nepean, Geelong region 11
2.1 Coastal urbanisation in Australia 52
2.2 Peak population estimates for selected towns 2006 56
3.1 Point Nepean National Park and Point Nepean Quarantine Station 67
4.1 Gippsland Lakes region 93
4.2 Coastal Settlement Framework: Spatial Growth Management (Gippsland region) 111

5.1 Location of the Geelong region 117

5.2 Lands of the Wada Wurung 125

5.3 Urban growth in the Geelong region 127

5.4 Coastal Settlement Framework: Spatial Growth Management (Geelong region) 137

**Compact Disc (CD)**

Gippsland coast focus group 18 October 2007

Central coast focus group 29 October 2007

**Rear cover**
From integrated coastal management to sustainable coastal planning

Integrated coastal management (ICM) has been the basis for coastal planning and management since the 1970s. The theory and practice of ICM is based on the premise that increased integration of planning and management in the coastal zone will lead to improved environmental and social outcomes for the coast. In the context of global and national trends, this thesis examines the application of ICM in three place-based coastal case studies in Victoria: the Gippsland Lakes, Point Nepean and the Geelong region. The particular focus is on the twin challenges of coastal urbanisation and the impacts of climate change. Through a wide range of applied research techniques including focus groups, the research explores the pressures, issues, impacts and implications for ICM and beyond. The case studies point to a number of important implications for ICM and identify opportunities for a more sustainable approach to coastal planning. In reviewing the research findings, a set of five steps and six principles are proposed to respond to policy failures and provide for a transition to more sustainable coastal planning in Victoria. The five steps involve expanding the theory of ICM to be outcome based and regional in its approach to coastal planning and management. In the context of climate change, a more adaptive and systems approach has been incorporated along with recognising the even greater importance of community engagement in coastal planning processes during a period of increased uncertainty and change. The principal instrument for change is a tripartite intergovernmental agreement on sustainable coastal planning underpinned by a set of six principles. These include: agreed and shared outcomes for the coastal environment to facilitate horizontal and vertical integration; an adaptive and systems approach integrating science and urban planning drawing on experience and knowledge in both disciplines; incorporation of the shared outcomes and an adaptive approach into urban and regional planning systems for local implementation; regional governance arrangements for integration of policy outcomes and community involvement; capacity building for sustainable coastal planning including interdisciplinary research and community education and long term monitoring and evaluation. The transition from ICM to sustainable coastal planning does not discard ICM but rather incorporates its strengths and adapts the concept to meet the twin challenges of coastal urbanisation and climate change. Further research questions are posed to indicate how the research findings could be further developed as part of a future coastal research agenda. The research findings seek to make a contribution to the theory and practice of ICM to build a pathway to coastal planning for the benefit of our coast and future generations.
1 Introduction

Many of our coasts bear the imprints of humans. On some parts of the coasts, traces remain of the earliest inhabitants of the Australian continent. In other places, high-rise apartments support high densities of inhabitants, and the desire for a ‘sea change’ lifestyle sees many more people migrating to the coasts each year. Other coasts remain untouched, even today, although the indirect effects of climate change are threatening them and seem certain to be felt in coming years (Short & Woodroffe 2009, p. xii).

1.1 Purpose of research

The Australian coast is under significant environmental pressure from human induced impacts with approximately 86 per cent of the Australian population living on the coast (Natural Resource Management Ministerial Council 2006, p.44). The pressures include population growth and demographic shifts, tourism and new industries including aquaculture, a decline in water habitat and water quality and the predicted impacts of climate change (Natural Resource Management Ministerial Council 2006, CES 2008a). The series of national State of Environment Reports (DEST 1996, Environment Australia 2001, DEH 2006) confirm that these pressures are placing cumulative stress on the coastal environment. The Australian State of the Environment Committee stated that ‘there are no surprises or new issues since 2001. There is still a pressing need to respond to previously identified pressures in order to prevent the continuing slow and cumulative decline in environmental quality’ (DEH 2006, p.49). It concludes that there is a need for ‘a reform in governance to move away from short term and sectoral management towards a more systematic integrated and planned approach to monitoring and managing’ (DEH 2006, p.102). As the commissioned theme commentary, Coasts and Oceans, concludes:

The overall conclusion that can be drawn from this analysis is that in 2006, most, if not all, of the issues identified and assessed in both the 1996 and the 2001 national State of the Environment reports still remain to be resolved. Some issues have changed in importance, but all have been foreshadowed in earlier state of the environment reports. This calls into question the effectiveness of Australia’s responses to identified key national problems that afflict coastal and marine ecosystems, and particularly the reforms in governance that are required to enable a move away from short-term and sectoral management towards a more systematic, integrated and planned approach to managing coast and ocean issues (Ward & Butler 2006, p.36).
Since the early 1970s, coastal planning in Australia has been underpinned by approaches to integrated coastal management (ICM) (Cicin-Sain & Knecht 1998, Thom & Harvey 2000, Harvey & Caton 2003, Sorensen 1997). ICM has been gradually introduced throughout the world over the last three decades. It is now the cornerstone of coastal management in several nations, for example, the United States Coastal Zone Management Act 1972. ICM has been defined and over time developed in a number of ways, with ‘integration’ remaining as the common theme. As Sorensen comments, ‘one of the most important lessons learned from the history of ICM is that horizontal and vertical integration is both the practice’s keystone and its largest challenge’ (Sorensen 1997, p.7). A detailed discussion on the definition and development of ICM is found in Chapter 2.

The ‘purpose’ of this thesis is to examine the effectiveness of ‘integrated coastal management’ in protecting the Victorian coastal environment. Or, put simply, why has the environmental condition of the Victorian coast not improved overall despite thirty years of ICM (CES 2008a,b,c)? This is done through two sets of lenses. The first is the twin pressures of urban growth and climate change on coasts and coastal planning. The second is three place-based case studies: the Gippsland Lakes, Point Nepean and the Geelong region. The primary focus of the research is on the Victorian coast with possible implications for coastal planning and management in Australia. The outcome of this research is the development of an approach that moves beyond ICM to provide a revised framework for coastal planning and management in Australia, which responds specifically to the two challenges of increasing coastal settlement and the possible impacts of climate change. I have named this enhanced approach ‘sustainable coastal planning’.

This thesis is developed from the perspective of a ‘land use planner’ examining institutional and regulatory arrangements for land use and coastal management. The primary focus is the theory and practice of integrated coastal management and its relationship with the discipline of urban and regional planning (legislation, plans, policies and practices) and the emerging field of climate change adaptation as it affects the coast. The research is a social science inquiry but is also informed by relevant scientific understandings of coastal processes and predicted climate change (IPCC 2007). The issues concerning ICM are inherently interdisciplinary and for this reason there is a risk that this thesis does not fit squarely into one traditional discipline. The significant potential benefit is the insight it can bring to better understanding the connections between the disciplines (theories and practices) with the
possibility of advancing the theory of ICM, a risk worth taking to better understand the contribution of ICM.

This thesis explores the theory and practice of ICM, so it is important to state at an early stage some key coastal definitions adopted for this research. A more comprehensive glossary of is provided in the appendices. The key coastal terms include integrated coastal management, the coast, the coastline and the coastal zone. The adopted definitions for the research are stated below. A more detailed discussion on the origin and development of ICM is included in Chapter 2. The definition of ICM adopted for this thesis is ‘the integrated planning and management of coastal resources and environments in a manner that is based on the physical, socio-economic, and political interconnections both within and among the dynamic coastal systems, which, when aggregated together, define a coastal zone. An integrated approach requires both the horizontal (cross-sectoral) and vertical (the levels of government and non-government organizations) coordination of those stakeholders whose actions significantly influence the quantity or quality of coastal resources and environments’ (Sorensen 1997, p.9). This definition is based on the concept of ‘integration’ and is inclusive in embracing the physical, socio-economic and political dimensions. It also recognises the dynamic nature of coastal systems and represents much of the thinking of ICM in recent times. In this sense the definition of ICM can be seen as a theory, ‘a reflection of practice and is now re-presented as a set of components and way of ordering the components to produce good practice’ (Bessant & Watts 2001, p.31). It is in this sense that the theory of ICM is examined in this thesis.

As this thesis is predominantly concerned with the Victorian coast and the implementation of coastal policy it is also important to state the definition of ICM in the Victorian Coastal Strategy (VCS) 2008: ‘a framework that attempts to integrate planning and management in a region, such as the State of Victoria, across the land and sea interface and the private and public land interface, to treat the coastal zone (which includes the catchment) as one biophysical entity’ (VCC 2008, p.74). The VCS also takes an inclusive approach based on integration that includes the catchment to coast to ocean continuum. Both definitions include planning and management. ‘Coastal planning’ is usually concerned with long term plans for the coastal zone as distinct from ‘coastal management’ that is focussed on management and implementation (Short & Woodroffe 2009, p.262, Sorensen 2007). This thesis uses both terms and often together. It is concerned with coastal planning and management, their integration with each other and with urban and regional planning. The importance of this distinction and the implications for ICM is discussed later in Chapter 6.
The length of the Australian coastline (or coast) may appear to be a simple question. However, there are several answers and a wide range of methods can be applied to measure the length of the coast. Issues can include the measurement techniques and the inclusion or not of the outlying islands and territories. According to Short & Woodroffe (2009, p.1), estimates can vary from 30,270 kilometres to 59,736 kilometres. For the purposes of this thesis, the Australian coastline is estimated to be 36,000 kilometres long as defined by the Australian Government (DEH 2006). The length of the Victorian coastline is adopted from the VCS (VCC 2008) and is estimated to be approximately 2000 kilometres long. The Victorian coastline is considered unique as it is ‘the only major south-facing coastline in the world and has been isolated for approximately 65 million years’ (VCC 2008, p.10).

A broad definition of the ‘coastal zone’ is adopted for this research. This is consistent with a more inclusive definition applied over thirty years of federal coastal inquiries and reports (RAC 1993). This ‘inclusive’ definition recognises the complexity involved with multiple coastal stakeholders and interests. As Sorenson (1997,p.8) indicates, the coastal zone should comprise three components: coastal waters area, the coastline and the coastal area. The Victorian Coastal Council has defined the ‘coast’ to include ‘the sea and the seabed to the state limit three nautical miles or 5.5 km; land and inland waters in the coastal catchment’ (VCC 2008, p.73). This definition of the coastal zone is adopted for this research as the case studies are based in Victoria. It is similar in its inclusiveness to the Australian Government definition in the National Cooperative Approach to Integrated Coastal Zone Management, which states the coastal zone ‘includes coastal and those areas landwards of the coastal waters where there are processes or activities that affect the coast and its values’ (Natural Resources Management Ministerial Council 2006, p.51). The above definitions of the coast and the coastal zone are used in this research unless otherwise stated.

The pressures on our coastal environments are not a new phenomenon and during the last thirty years ICM has been the overriding policy response. The contemporary problem is that the pressures have changed in two significant ways — the rate of change and the unprecedented level of uncertainty and risk — both dimensions highlighted in this research on the twin pressures of urban growth and climate change (Gleeson 2008, Hallegatte 2008, ICA 2008, O’Riordan 2009). The apparent contradiction between implementing ICM in Australia on the one hand and the continued deterioration of the coastal environment on the other hand is the ‘essence’ of this research inquiry. This distinction between the ‘intent’ of ICM and the
‘outcome’ of ICM forms the basis of the five research questions outlined in Section 1.2 which seek to understand this intellectual puzzle (Mason 2002) or disjuncture and address the ‘twin’ challenges of coastal urban growth and the impacts of climate change, particularly coastal inundation. In doing so, I hope to advance the theory of integrated coastal management. A possible pathway forward is presented in chapters 6 and 7.

1.2 Research questions

There is a myriad of issues confronting the Australian coastal environment, too many to be addressed in this dissertation. This research focuses on the theory and practice of ‘integrated coastal management’ and its impact on the coastal environment. The Australian State of the Environment Committee and the Victorian Commissioner for Environmental Sustainability have both highlighted ‘urban development’ as a key impact and identified ‘climate change’ as a priority area of action (DEH 2006, CES 2008a). These are the principal two themes examined in the selected case studies.

There are five key research questions. The thesis begins with a critical analysis of ICM, especially with regard to its ability to cope with the multidisciplinary and trans-sectoral challenges of rapid coastal urbanisation and climate change. The five research questions to be addressed are:

1) What is the current state of knowledge and academic debate on integrated coastal management and coastal planning?
2) What are the gaps in the theory of ICM and the disjuncture between theory and practice in coastal planning? Why is this significant?
3) What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change?
4) How do the research outcomes contribute to the advancement of the theory of ICM and the practice of coastal planning?
5) What key principles could frame a more sustainable approach to coastal planning in Victoria and more generally in Australia?

This examination provides a research basis for understanding the gaps and impediments to sustainable planning of the coast. The outcomes of research questions 1 to 5 provide the evidence to suggest how the theory of integrated coastal management could be advanced to
provide a new framework for coastal planning in Victoria particularly, with some implications more generally for Australia.

1.3 Research design

The following outlines the approach undertaken for the qualitative research in this thesis including the data-gathering tools, the steps in the methodology, the case studies, and the focus groups. It is a systematic approach to investigating the theory and practice of ICM in coastal Victoria.

1.3.1 Data-gathering tools

This thesis is based on qualitative research and a range of data-gathering tools have been applied. It is grounded through specific place-based coastal case studies and is informed further by a wide range of information to examine integrated coastal management. The information sources are listed below and elaborated on later under methodology.


ii. Two major focus group discussions held in the Central Coastal region and the Gippsland coastal region directly related to the three place-based case studies of Point Nepean, the Gippsland Lakes and the Geelong region (discussed below).

iii. Significant fieldwork in the three placed-based case studies and coastal Victoria more generally over a five-year period (2004–2009). This has included personal research visits, participation in local coastal forums, visits arising from membership of the Central Coastal Board and providing broader advice to the Victorian Government.

iv. Specific commissioned photography to emphasise key issues in the case studies in relation to coastal development and coastal inundation (2009).

v. A personal submission and evidence to the Australian parliamentary inquiry into climate change and environmental impacts on coastal communities (current) and a knowledge of the over one hundred submissions to that inquiry.

vii. Direct feedback over five years from publications and presentations to a wide range of international, national and local forums including academic, specialist and community groups to update information and verify accuracy of interpretation of primary analysis (2003–2009). A list of refereed papers and conference presentations is provided in Appendix 5.

The methodology has drawn on (i) to (vii) to gain a comprehensive understanding of the gaps and opportunities of ICM generally within Australia and specifically within Victoria. For the case studies, evidence is principally gathered from primary sources including primary government documents, ministerial statements and media releases. These data are validated by two regional focus groups with members of the Gippsland and Central Coastal boards. My understanding of the issues is enhanced by my active participation in the coastal community of Victoria as a government adviser, a public commentator, a researcher and as an observer (Norman 2004, 2005, 2006a,b, 2008a,b,c, 2009a,b).

Secondary sources including academic contributions on the related fields of ‘integrated planning’ (e.g. Healey 2008, Newman et al. 2009) and the emerging field of ‘climate change adaptation’ (O’Riordan 2009) provide critical insights into the analysis. Where appropriate, key points are illustrated through location-specific photography. These approaches are all considered legitimate research methods for qualitative analysis based on case studies (Bryan & Burgess 1999).

The primary outcome of the research is the further development of coastal management theory that I have called ‘sustainable coastal planning’, the principles of which are discussed in Chapter 2 and interpreted in Chapter 6. An intergovernmental agreement for coastal planning is proposed in Chapter 6 as a means of explaining the application of this extended theory of integrated coastal management.

The case studies are enhanced by a review of international practice on coastal inundation, a review of submissions to the Australian parliamentary inquiry on the environmental impact of climate change on coastal communities and my experience as a member of the Central Coastal Board Victoria. The research has been refined through the presentation and
publishing of the research findings to a range of audiences including academic review, practitioners and the broader community.

1.3.2 Steps in methodology

The specific steps in the research methodology are outlined below. The time frame for the research focuses on a sixteen-year period 1993 to 2009, roughly benchmarked by the national inquiry into coasts by the Resource Assessment Commission (1993) and the Victorian State of Environment Report (2008). These two significant bookends provide valuable evidence on the state of the coastal environment over this period. The issues of coastal urbanisation and climate change continue to grow in importance and it became necessary to define a cut-off point for the research of 31 August 2009 to enable submission. The key steps in the methodology included:

a) A literature review of the theory and practice of ‘integrated coastal management’ and related theory including ‘integrated urban planning’ and ‘climate change adaptation’ was undertaken to identify the research gaps and opportunities;

b) An investigation of primary and secondary documents of three intentionally different place-based case studies on the Victorian coast was undertaken to examine the theory and practice of integrated coastal management. The time frame for the research focuses primarily on a fifteen-year period 1993 to 2008. However, where necessary a longer time frame is taken such as the discussion on the origin and development of ICM that dates back to the 1970s.

c) Two significant focus groups were undertaken during October 2007 to better understand the knowledge and application of integrated coastal management by key decision makers in the coastal community in Victoria. Two coastal regions in Victoria were selected which encompassed the three place-based case studies: the central coast region and the Gippsland coast region. The interviewees comprised key government officials, specialists and community coastal organisers. Ethics approval was obtained by RMIT University and included signed declarations by the participants, a plain language letter and an explanatory note as required by the Ethics Committee of RMIT University. The RMIT ethics approval letter is provided in Appendix 4. A final report was submitted to the Ethics Committee on completion of the research. The methodology of the focus groups is further discussed below.
d) A review was undertaken of over one hundred submissions to the Australian parliamentary Inquiry into climate change and environmental impacts on coastal communities in order to better understand the range of perspectives on and concerns about the projected impacts of climate change (IPCC 2007). I also made a written submission to the inquiry (May 2008) and presented it to the inquiry (May 2009). The submissions, presentations and parliamentary questioning are officially recorded in the Australian Parliamentary Hansard.

e) A review was undertaken of international and national land use responses to coastal inundation in the contexts of climate change and ICM. This evidence was presented to academic, specialist and community forums for feedback and formed the basis of a report on planning for coastal climate change to the Victorian Government during 2009 (Norman 2009b). The right to use this material for research in my PhD thesis was acknowledged in writing by the Victorian Department of Planning and Community Development.

f) I participated in a continuous ‘dialogue’ over five years with the academic, specialist, coastal communities and the wider media on the developing research inquiry in order to gain valuable feedback with which to inform the research conclusions. This resulted in sixteen papers and presentations (Appendix 5), an Opinion article published in the Age newspaper, correspondence published in the Australian Financial Review, several ABC radio interviews and an ABC Television 7.30 Report interview.

In summary, the methodology is based on qualitative research drawing on a wide range of data-gathering tools, three carefully selected place-based case studies enhanced by two targeted focus groups. The three different case studies of Point Nepean, the Gippsland Lakes and the Geelong region each explore the strengths and weaknesses of ICM in intentionally different coastal locations in the State of Victoria. The reasons for selecting each case study are outlined below.

1.3.3 The Victorian coastal case studies

The research design is as noted above, based on three place-based case studies within the context of wider research and supported by focus groups (discussed in Section 1.3.4). This approach draws on the theory that carefully selected diverse case studies at the commencement of research can provide the basis for the development of general theories through observation (Platt 1999). As Platt states, ‘it is because case studies, especially those
which start with the case in its own right rather than as an instance, are more likely to uncover unanticipated findings as the details are explored. This openness to surprise and availability for multiple purposes is a real strength’ (Platt 2009, p.179). It is in this context that the carefully targeted case studies have been selected.

The three placed-based case studies represent three different coastal environments — a country regional coastal lakes system, a coastal headland in public ownership and an urbanising coastal region. Each case study presents issues and implications for integrated coastal planning and management. The location of the three case studies is shown in Map 1 below. The different locations bring different perspectives and collectively the research seeks to test the robustness of ICM as a theory and a practice in coastal Victoria.

Map 1.1 Location of the three case studies: Gippsland Lakes, Point Nepean, Geelong region

The Gippsland Lakes is selected as a significant country tourist destination and coastal settlement based on a coastal lakes system. It lies within a large water catchment involving seven major rivers and faces Bass Strait in the southern ocean. The Gippsland Lakes are 300 kilometres east of Melbourne and the region is a major recreation and boating destination in Victoria. The Gippsland Lakes comprise the three major lakes of Wellington, Victoria and King and cover a shoreline of 320 kilometres. The Gippsland Lakes receive the waters from the Latrobe, Avon, Nicholson, Tambo, Mitchell, Macalister and Thomson rivers and are joined to the sea by an artificial entrance constructed during the 1880s (NRE 2002, p.2). To seaward, this delicate coastal ecosystem is adjacent to the Ninety Mile Beach Marine National
Park (part of the Victorian Marine National park system to 3 kilometres seaward) and the Australian Government’s South East Regional Marine Plan, which lies 3 km to 200 km seaward.

The **Gippsland Lakes region** is chosen as a case study that includes multiple stakeholders and interests with significant governance issues in managing the environmental qualities of a coastal lakes system and coastal environment. Its environmental management requires horizontal and vertical integration of policy encompassing two water catchments, seven rivers, three lakes, a fragile coastal edge and a rich marine environment. The local economy is predominantly agricultural with increasing pressures on urban nodes from tourism and recreation. The Gippsland Lakes has a long Indigenous history well before white settlement. It is rich in natural assets, a major commercial fishing centre and a significant tourism playground for Melbourne.

The coastal lakes system has experienced increasing pressure on its environment and is showing visible signs of environmental stress. During 1988, an environmental audit of the Gippsland Lakes found that ‘the system was poised on the edge of significant and irreversible degradation’ (NRE 2002, p.2). As the Victorian Commissioner for Environmental Sustainability states, ‘what we do on land affects the sea: water quality is inversely related to land use intensity in the adjacent catchment. As a result, water quality in Port Phillip Bay, Western Port and the Gippsland Lakes is likely to be poorer than in the open ocean, which is characterised by high levels of mixing and flushing, and is further removed from high intensity land use’ (CES 2008c, p.428). In other words, a coastal environment such as the Gippsland Lakes requires careful coastal planning and management.

**Point Nepean** is an environmentally sensitive coastal headland facing Port Phillip Bay to the west and Bass Strait to the south. It comprises national, state and local land ownership and significant Indigenous and European heritage. Point Nepean is located 95 kilometres from Melbourne on the southern point of the Mornington Peninsula Victoria, and is a prominent headland of Port Phillip Bay. The Point Nepean area is over 900 hectares and is chosen as a case study to explore the question of federal, state and local government coastal governance arrangements in Victoria. The case study thus involves a prominent headland rich in natural and cultural heritage partly owned by three levels of government. The case study examines coastal planning and governance arrangements in relation to environmental protection of this important coastal headland. Significant Indigenous interests are involved and are a very important consideration in the land management arrangements. The intergovernmental
negotiations over the planning of Point Nepean commenced during 1998 when the Australian Government first offered the land for sale to the State of Victoria. It has taken over eleven years to complete the negotiations and secure the long term environmental protection of Point Nepean. Underlying the negotiations were important coastal land considerations, including public or private ownership, commercial use of coastal lands, Indigenous interests and involvement in land management, and the long term environmental protection of a significant coastal headland adjacent to a major metropolitan area (Norman 2004, Millar 2009).

The **Geelong region** represents a major coastal urban growth region located on Port Phillip Bay and Bass Strait and adjacent to metropolitan Melbourne. A critical part of urban growth management is planning for the expansion of our coastal-based cities. This is particularly challenging given the intergovernmental arrangements for the Australian coastal environment (Norman 2005). For the purposes of this thesis, the Geelong region is defined to include the City of Greater Geelong and the shires of Surf Coast, Golden Plains and Colac Otway and the Queenscliffe Borough. This definition is drawn from the current regional organisation The Geelong Region Alliance, a regional coalition of local councils (G21, 2009a). This case study is chosen to explore the influence of urban governance arrangements on the development of the Geelong region and the degree to which they have laid a foundation for managing future urban coastal growth. Since the 1960s, the Geelong region has had a varied history in terms of urban governance including local councils, the Geelong Regional Planning Authority, the Geelong Regional Commission, the Greater Geelong Council and a more recent initiative in cooperative regionalism ‘G21’. During the same period, the City of Geelong and its regional hinterland have experienced significant urban growth. The Geelong region case study provides insights into future possible coastal governance arrangements experiencing rapid urban development.

All three case studies raise significant issues in relation to coastal planning and management and the environmental protection of coastal environments. As previously outlined, a key principle of ICM is horizontal and vertical integration of coastal policy. The three case studies examine this principle, with the Gippsland Lakes providing particular insights into questions of horizontal integration (catchment to coast to ocean), Point Nepean on vertical integration (local to state to Australian) and the Geelong region on regional planning — a possible spatial framework for an integrated approach to ICM. It is in this context that the research examines the gaps and impediments to achieving more sustainable coastal planning.
1.3.4 The focus groups

A focus group approach was adopted as a key part of this research to inform the research findings with information that could not be obtained in other ways. The methodology was based on the approach outlined by Hay (2000), designed for focus group research in environmental and urban planning. It is also relevant to placed-based research. Cameron (2000) outlines the considerations in planning and conducting the focus groups and the subsequent analysis and use of evidence. Key elements include having structured conversations (prompted by key questions), groups of not more than ten people and being clear on the process of selecting participants, i.e. targeted selection. All these elements have been included in the process adopted for the focus groups in this research and, as required, ethics approval was granted by RMIT University.

The methodology of the focus groups involved a recorded discussion facilitated by me and recorded on the CD (attached at the end of this thesis). The two separate groups, each of fewer than ten participants, were drawn from membership of the Gippsland Coastal Board (Gippsland coast focus group) and the Central Coastal Board (central coast focus group). These ‘targeted’ focus groups of up to ten people each, comprised a diverse range of experienced coastal decision makers and community coastal participants including public servants, academics, coastal specialists and community leaders. This process provided insights into the impediments of implementing integrated coastal management. The more informal social conversation enabled personal contributions that may not be forthcoming in the boardroom. The nature of the questions also provided significant opportunity for new ideas on how ICM could be improved for better coastal protection in the future. The evidence from the focus groups is presented throughout the thesis in general terms, supplemented by ‘well chosen’ quotations to emphasise a point (Cameron 2000, p.100). The selected quotations are referenced in the text by ‘time of recording’ of the individual contribution to the focus group discussion recorded on the CD in the rear cover of this thesis (e.g. John Smith 2007, central coast focus group timed at 25 minutes, or Jill Smith 2007, Gippsland coast focus group timed at 30 minutes). As part of the ethics approval the focus group participants gave their written consent to be quoted in the thesis.

The focus groups ran for approximately one hour each and were structured around the following key five questions. The questions began with theory of ICM, then the practice of ICM in Victoria and concluded with discussion on what lessons could be learned from the
The Victorian coastal strategy is based on the idea of ‘integrated coastal management’. What do you understand by the term ‘integrated coastal management’?

ii. What are the emerging future issues in relation to coastal planning in your region?

iii. How do you think coastal planning in Victoria could be improved?

iv. Is there a role for local, state and federal government in coastal planning? If so, what is it?

v. What lessons could be learned from Victorian coastal planning that could be applied elsewhere in Australia?

The CD recording of the full focus group discussions is attached at the end of this thesis. The focus group discussions were an important feature of the methodology and were drawn on significantly throughout the case studies. The structured conversations provided valuable insight into the impediments and opportunities for ICM that may not be readily apparent from written material. They also provide insight into the experience and wisdom of coastal managers and coastal community activists in Victoria. The mixture of key government officials, specialists and community coastal organisers drawn from the coastal boards brought knowledge and experience from conservation, tourism, business, recreation, commerce, issues relating to Indigenous peoples, community affairs, town planning, local government and coastal engineering (as prescribed by the Coastal Management Act 1995). It also brought a diversity of perspectives necessary to understand the complexities of coastal planning and implementation.

1.4 Structure of thesis

The thesis commences with an overview to provide a context for the research, including the purpose of the research, the key research questions, the methodology and the structure of the thesis. This is followed by an evaluation of ICM as a theory and a practice from a global and national perspective. The three case studies are then presented to provide more detailed local analysis of coastal management in the State of Victoria. The research findings are evaluated to identify what are the implications for coastal management, coastal planning and what are the impediments to sustainable coastal planning. A possible framework for sustainable coastal planning that would overcome identified weaknesses in ICM is developed.

Chapter 1 outlines the purpose and context of the research, the key research questions, the
methodology and the structure of the thesis. It also defines key definitions, the scope and limitations of the research and its intended contribution to the theory and practice of ICM.

Chapter 2 addresses research questions 1 and 2. ‘Coastal planning for urban growth and climate change’ explains the origins and brief history of ICM including global and Australian developments. It focuses on two principal themes: coastal urbanisation and the impact of coastal climate change, particularly coastal inundation. A critique of the theory of integrated coastal management is provided with reference to urban and regional planning and the emerging field of climate change adaptation. Key limitations of ICM are identified at the global and national level to provide a context for the Victorian case studies in chapters 3 to 5.

Chapters 3, 4 and 5 address research questions 2 and 3. The three case studies examine the application of integrated coastal management in greater detail at the local level in Victoria. As previously detailed, the three case studies are the Gippsland Lakes, Point Nepean and the Geelong region (Map 1.1): a coastal lakes system, a coastal headland and an urban coastal region. The three case studies also represent different coastal governance arrangements. In this way the distinct place-based case studies provide significant diversity to examine the effectiveness of ICM as a framework for environmental protection of the coast.

Chapter 6 addresses research questions 3, 4 and 5. It summarises and analyses the research findings for chapters 3, 4, and 5 and draws out the implications for the theory and practice of ICM. The chapter focuses on the key themes of coastal urbanisation and climate change adaptation and discusses the identified gaps and future challenges for integrated coastal management. Based on the research findings, a set of principles is developed for a more sustainable approach to coastal planning is developed that could underpin a proposed intergovernmental agreement on sustainable coastal planning. This is the major intellectual contribution of the thesis, namely to advance the theory of integrated coastal management.

Chapter 7 provides a summary of the key themes of this thesis with respect to the research questions. It summarises the research journey and the key research themes and identifies research questions for the future. Conclusions are drawn in relation to the five research questions posed in Chapter 1.
1.5 Scope and limitations of research

This thesis presents a constructive critique of the theory and practice of integrated coastal management and how effectively ICM responds to two major global phenomena: coastal urbanisation and the impact of climate change on coastal environments. The particular focus on climate change is coastal inundation. The scope of the research is the Victorian coast. It is particularly concerned with the connection between ICM and urban and regional planning systems (urban and regional strategic plans, statutory planning schemes, local planning policies and guidelines that plan and regulate development and land use activity) and the emerging field of climate change adaptation. It is based on qualitative research using a wide range of data-gathering tools including published academic research, primary documents, selected case studies, focus groups and my active engagement in community and academic forums.

The research is focussed on strategic policy and governance issues. It draws on selected examples of coastal development cases to illustrate points rather than a detailed analysis of statutory environment and planning law. The research findings examine the gaps within the ICM approach to coastal planning and management and any disjunctures between the intent and the outcomes. The research recognises the importance of catchment management and the issue of acid sulfate soils but does not examine these in detail. The conclusions are made in relation to the five research questions posed in Chapter 1. The intellectual contribution of this thesis is, as stated, to provide an understanding and pathway to move beyond ICM to more sustainable coastal planning in Victoria, with possible implications for coastal planning in Australia as a whole.
2 Coastal planning for urban growth and climate change

2.1 Integrated coastal management

Chapter 2 is a critical examination of ICM as a theory and a practice. ICM has been a global trend and the foundation of coastal management in Australia since the 1970s. Chapter 2 includes a literature review and aims to answer the following key research questions.

Research question 1: What is the current state of knowledge and academic debate on integrated coastal management and coastal planning?
Research question 2: What are the gaps in the theory of ICM and the disjuncture between theory and practice in coastal planning? Why is this significant?

As a critical examination, the chapter explores the research evidence of the strengths and the limitations of ICM as they have emerged over thirty years of implementation with a view to a preliminary re-conceptualisation of ICM in the face of rapid population growth and a changing climate in coastal areas. Chapter 2 begins with a brief history of integrated coastal management with a focus on its origin, development and the various definitions that have been put forward. This is followed by an analysis of the research evidence concerning both the strengths and the limitations of ICM. This includes evidence from international and Australian studies, and leads to a review of current global developments in ICM, particularly in relation to coastal planning and actions by the United Nations and related institutions. This provides a framework for examining current developments of ICM in Australia and for identifying the ‘gaps’ within the theory of ICM and its disjuncture with practice.

Chapter 2 is thus divided into five sections and entails:

i. An introduction outlining the purpose and structure of the chapter, and examining the history, the current status and the future prospects of ICM as a framework for coastal planning;

ii. A brief history of integrated coastal management including its origin, development and various definitions to provide a context for the subsequent discussion on current events in ICM and the challenges in the future;
iii. Current global developments in ICM and in particular coastal planning, including activity by the United Nations and related global institutions, providing a framework for the following discussion on Australia;

iv. Current developments in Australia in ICM and, in particular, coastal planning, providing the background for a discussion on the ‘gaps’ within the theory of ICM and its disjuncture with practice;

v. Beyond ICM towards more ‘sustainable coastal planning’ drawing on the above, including the academic debates on the strengths and weaknesses of ICM and the possible pathways forward.

Chapter 2 provides an examination of integrated coastal management as both a theory and a practice and highlights the limitations of ICM that have emerged over thirty years of implementation. Chapter 2 concludes with preliminary findings into what could constitute an advancement of ICM towards a more sustainable form of coastal planning that achieves the balance of environmental protection and managing coastal urban growth in a changing climate. This foundation discussion of ICM establishes the platform for more recent ‘local’ evidence place-based case studies examined in chapters 3, 4 and 5 and the examination of the overall research findings as discussed in chapters 6 and 7.

2.2 The origins and development of ICM

The theory and practice of integrated coastal management is key to this thesis. Therefore, it is essential to commence with an understanding of ICM in all its dimensions. The following provides a description of the origins and the definitions of ICM and its connection to coastal planning. As integrated coastal management has developed, it has been described variously as ‘coastal zone management’, ‘integrated coastal zone management’, ‘integrated coastal area management’ and ‘integrated marine and coastal area management’ (Cicin-Sain & Knecht 1998). For the purposes of this thesis, the term integrated coastal management will be used to cover all of these terms. The definition of ICM was provided in Section 1.1.

2.2.1 Global origins

The United States laid the foundation for the introduction of ICM through its landmark national coastal legislation, the Coastal Zone Management Act 1972. The US Congress introduced this Act in response to increasing urban growth on the coastline. It is unusual in that it provides for a voluntary partnership with the states, with the very strong incentive that,
once a coastal plan is developed, federal interests must comply with it, including energy, defence, aquaculture, recreation, ports and transportation (NOAA 2009a). This is called the Federal consistency test and is further explained below. The implementing agency is the US National Oceanic and Atmospheric Administration (NOAA 2009b). This was a very significant step in coastal management and provided the platform for many nations, including Australia, to subsequently embrace the framework of ICM. The adoption of ICM has occurred in different guises and generally not with the statutory strength established in the USA or with the associated direct national funding programs. For example, the United Nations Environment Program (UNEP) and European Union approach ICM through sets of protocols and guidelines while the Australian approach is characterised by localised programs that are predominantly state based.

Since the 1970s a number of international conventions and agreements affecting the coastal environment have been ratified. Australia is signatory to several of these as illustrated in Table 2.1 All these agreements have contributed to the global development of ICM by establishing internationally agreed principles for resource management particular to ocean and coastal environments.

Table 2.1: International agreements affecting the coastal zone signed by Australia

<table>
<thead>
<tr>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramsar Convention (1971)</td>
</tr>
<tr>
<td>World Heritage Convention (1972)</td>
</tr>
<tr>
<td>CAMBA (1986) and JAMBA (1974) agreements on migratory birds</td>
</tr>
<tr>
<td>International Maritime Organisation (MARPOL 73/78)</td>
</tr>
<tr>
<td>Global Programme of Action for Protecting the Marine Environment from Land-based Sources of Pollution (1995)</td>
</tr>
</tbody>
</table>

(Source: Natural Resource Management Ministerial Council 2006)

Significant attention was given to defining ICM and supporting its worldwide adoption at the 1992 Conference on Environment and Development (Earth Summit) in Rio de Janeiro. A landmark document in relation to ICM is Chapter 17 of Agenda 21, the international action plan approved at that meeting. Chapter 17 outlines an agenda for the ‘Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources’ (UNCED 1992, p.1). This includes a set of objectives, management activities, data and information needs, international
and regional cooperation requirements and a program of implementation. In particular, S17.1 applies several sustainability concepts to ICM, including the precautionary principle, integrated management, sustainable use, climate change and regional cooperation. S17.1 states that ‘this requires new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit’ (UNCED1992, p.2).

Alongside the advances in ICM, the United Nations simultaneously commenced action on climate change and importantly introduced a connection between climate change policy and coastal management through the UN Framework Convention on Climate Change 1992 which states that countries should ‘…cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods’ (Article 4) (United Nations 1992, p.5). Agenda 21 and the Framework Convention on Climate Change, both introduced during 1992, represented a major step forward in recognising the dimensions of urbanisation and climate change in coastal areas. Another was the first world coastal conference held in the Netherlands in 1993, which represented another significant milestone in the development of ICM. The World Coast Conference Agenda for Action states: ‘Integrated Coastal Zone Management involves the comprehensive assessment, setting of objectives, planning and management of coastal systems and resources, taking into account traditional, cultural and historical perspectives and conflicting interests and uses; it is a continuous and evolutionary process for achieving sustainable development’ (IPCC 1993 p.1). This was a very significant event bringing together over ninety coastal nations. The conference was auspiced by the Intergovernmental Panel on Climate Change (IPCC) and the Organisation for Economic Co-operation and Development (OECD). The OECD describes the world conference as a call by ‘coastal states to identify their objectives for coastal zone management, and begin implementing programmes to achieve them’ (Heitzmann 2006, p.1). The outcome of the world conference was twofold: recognition of the ‘need for coastal states to strengthen their capabilities for integrated coastal zone management’ and that ‘integrated coastal zone management was the most appropriate process to anticipate and respond to long-term concerns and needs while addressing present-day challenges and opportunities’ (IPCC 1993, p.23).
It was during this period in the early 1990s that the Australian Government became very active and developed a suite of relevant policy initiatives, including the National Strategy for Ecologically Sustainable Development (1992), the Intergovernmental Agreement for the Environment (1992) with the state and territory governments and during 1991 commissioned the national Coastal Zone Inquiry (RAC 1993). These broad environmental frameworks and the recommendations of the national coastal inquiry provided a strong foundation for the subsequent development and adoption of the first significant national coastal policy ‘to provide a clear statement of the Commonwealth Government’s position on coastal management matters and to identify the initiatives that the Commonwealth will take to help improve the management of the coastal zone’ (Commonwealth of Australia 1995, Section1.1). Importantly, it was built around key objectives of sustainable resource use, resource conservation, public participation and knowledge and understanding. It also included the concepts of ‘coastcare’ (community engagement in coastal protection), Indigenous coastal interests, and ‘integrated coastal area management strategies’. These policies and the Coastal Zone Inquiry are discussed in detail later in Section 2.2.

Since the 1990s, ‘coastal partnerships’ between nations also developed in Europe, Asia, the USA and Canada. The Coastal and Marine Union covering Europe (EU European Commission 2009) and the Partnerships in Environmental Management for the Seas of South East Asia (PEMSEA, 2009) are examples of international networks in coastal management. On a national level, the Neptune Coastline Campaign by the National Trust (UK) and the Coastal America Partnership (a decade of military support for coastal environmental protection actions) represent different national approaches (Coastal America 2009). PEMSEA places strong emphasis on the role of local government and regards ICM as providing the framework for implementing sustainable development for coastal and marine environments. The overall mission of PEMSEA is ‘to build interagency, intersectoral, and intergovernmental partnerships for achieving the sustainable development of the Seas of South East Asia’ (PEMSEA 2009).

Overall, the focus of ICM internationally has been principally on managing the global trend of urbanisation and the harvesting of coastal and marine resources. More recently, the impacts of the Indian Ocean tsunami (2004) and Hurricane Katrina on New Orleans (2005) have resulted in increasing attention to the potential impacts of climate change on coastal areas, particularly coastal inundation. Dupont and Pearman (2006) present climate change in coastal areas as a matter of national security and, by implication, international security:
Our principal conclusion is that the wider security implications of climate change have largely been ignored and seriously underestimated in public policy, academia and the media. Climate change will complicate and threaten Australia’s security environment in several ways. First, weather extremes and great fluctuations in rainfall and temperatures have the capacity to refashion the region’s productive landscape and exacerbate food, water and energy scarcities in a relatively short time span. Sea-level rise is of particular concern because of the density of coastal populations and the potential for the large-scale displacement of people in Asia (Dupont & Pearman, 2006 p.12).

These impending security issues are a very important consideration for Australia. As indicated above, climate change impacts are not just concerned with coastal inundation but include water, energy and food shortages. This thesis focuses particularly on coastal inundation but it is important to recognise these wider concerns and possible implications for ICM in the future. This includes a much closer connection between ICM and emergency management and an increase in complexity in the range of considerations in coastal planning and management.

There has been a significant number of key events that have influenced the development of ICM, as shown in Table 2.2. This has been drawn from analysis by Thom and Harvey (2000) Harvey and Caton (2003), Cicin-Sain and Knecht (1998) and the Natural Resources Management Ministerial Council (2006). It shows that the development of coastal planning and management has been a continuous process over three decades in response to human induced impacts on the coastal environment. Thom and Harvey (2000, p.275) identified ‘four triggers’ that have ‘stimulated reform of coastal management in Australia at the end of the twentieth century:

i. Global environmental change,  
ii. Adoption of the principles of sustainable development,  
iii. Application of strategic planning principles as a result of pressure for a more holistic or more targeted approach to resource management,  
iv. Greater community awareness of management issues and greater community participation in decision-making’.

These four factors are significant in explaining the development of improved environmental protection of the coast through a framework that considers social, economic and environmental dimensions over time and in partnership with the community. These four
identified dimensions laid the early foundations for a more sustainable approach to coastal planning at both the global and Australian levels, as discussed in the following section.

### Table 2.2  Global events influencing the development of ICM

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>US Coastal Management Act</td>
<td>A national legislated program for coastal management</td>
</tr>
<tr>
<td>1977</td>
<td><em>Our Common Future</em> (Brundtland Report)</td>
<td>Introduced concept of ‘sustainable development’</td>
</tr>
<tr>
<td>1991</td>
<td>Intergovernmental Panel on Climate Change</td>
<td>Common Methodology for Assessing Vulnerability to Sea Level Rise (IPCC 1991)</td>
</tr>
<tr>
<td>1992</td>
<td>UN Framework Convention on Climate Change 1992</td>
<td>Connected climate change policy and coastal management</td>
</tr>
<tr>
<td>1992</td>
<td>Convention on Biological Diversity 1993</td>
<td>Australia signed the Convention on World Environment Day, 5 June 1992, at the Earth Summit in Rio de Janeiro providing the basis for establishing a system of the marine parks</td>
</tr>
<tr>
<td>1993</td>
<td>World Coastal Conference: The Hague</td>
<td>Adopted guidelines for ‘integrated management of coastal zones’</td>
</tr>
<tr>
<td>1994</td>
<td>Intergovernmental Oceanographic Commission</td>
<td>Commitment to the sustainable use of the ocean</td>
</tr>
<tr>
<td>1996</td>
<td>International meeting on oceans and coast, Canada</td>
<td>Coastal Zones: Integrated Management and sustainable Development</td>
</tr>
<tr>
<td>2007</td>
<td>Intergovernmental Panel on Climate Change fourth report 2007</td>
<td>Outlined the scientific predictions for climate change and specifically referred to the possibility of significant sea level rise</td>
</tr>
<tr>
<td>2008</td>
<td>The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)</td>
<td>A regional intergovernmental agreement on the implementation of integrated coastal management.</td>
</tr>
</tbody>
</table>


#### 2.2.2  Australian origins

Paralleling international trends, there has been a continuing interest in coastal management in Australia since the early 1970s. However, unlike the decisive legislative action of the USA, the focus of activity in Australia has been a continuing process of national inquiries and reports. For example, the Australian Resource Assessment Commission (RAC, 1993) reviewed 29 previous national inquiries and noted 34 state government inquiries on coastal issues (Harvey & Caton 2003, p.208). As identified by Thom (2004, p.3), the major
significant reports from 1975 to 1993 all called for a national coastal policy and legislation, and included *Coastal Land* report no.5 (Australian Advisory Committee on the Environment 1975), *Management of the Australian Coastal Zone* report (Australian Parliament 1980), *The Injured Coastline* (Australian Parliament 1991) and the *Coastal Zone Inquiry Final Report* (RAC 1993). Thirty-four years later some would argue little progress has been made at the national level (Thom 2004, Wescott 2006b, Norman 2008a,b). Since 2003, the primary national coastal policy has been the development of a national cooperative approach to integrated coastal zone management (Natural Resources Management Ministerial Council 2003, 2006). During 2008, the Australian House of Representatives inquiry into climate change and the environment impacts on coastal communities began. The outcomes of this inquiry, expected to report in late 2009, will provide the basis for a national review of the Australian Government’s coastal policy.

Table 2.3 below provides a summary of the major national influences on the development of ICM in Australia over the last 30 years. In examining the trends in coastal policy in more detail, it is important to note that all of the above inquiries recommended a national approach to coastal management in Australia. The most influential two of these were *The Injured Coastline* and the *Coastal Zone Inquiry 1993*. Both recommended a national approach to coastal management and stressed the fragility of the coastal environment under increasing pressure. *The Injured Coastline* recommended that:

6.24 (8) The Commonwealth Government develop without further delay a national coastal zone management strategy in cooperation with the States and Territories and local government to provide a framework for the coordination of coastal management throughout Australia. The strategy should incorporate agreed national objectives, goals, priorities, implementation and funding programs and performance criteria;

6.37 (12) Following the preparation and development of a national coastal zone management strategy the Commonwealth enact legislation that sets out:
   a) A federal interest in the coastal zone;
   b) Agreed national objectives;
   c) Agreed national environmental guidelines and standards (including standards for water quality and industrial waste discharged); and
   d) Financial assistance schemes to assist the States and local government to formulate coastal management plans and policies that are consistent with the objectives and goals of the national strategy (Australian Parliament 1991, pp.84 and 87).
Table 2.3 Major national influences on the development of ICM

<table>
<thead>
<tr>
<th>Year</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>Coastal Land Report No.5 (Australian Advisory Committee on the Environment 1975)</td>
</tr>
<tr>
<td>1992</td>
<td>Intergovernmental Agreement on the Environment (COAG 1992a)</td>
</tr>
<tr>
<td>1993</td>
<td>Coastal Zone Inquiry Final Report (RAC, 1993)</td>
</tr>
<tr>
<td>1995</td>
<td>Living on the Coast: the Commonwealth Coastal Policy (DEST 1995a)</td>
</tr>
<tr>
<td>1995</td>
<td>Our Sea, Our Future, major findings the State of the Marine Environment Report for Australia (DEST 1995b)</td>
</tr>
<tr>
<td>1995</td>
<td>Community and Nation: A National Urban and Regional Development Agenda (Keating 1995)</td>
</tr>
<tr>
<td>1999</td>
<td>Environment Protection and Biodiversity Conservation Act 1999</td>
</tr>
<tr>
<td>2008-9</td>
<td>Australian parliamentary Inquiry into climate change and the environmental impacts on coastal communities (current)</td>
</tr>
</tbody>
</table>

(Table derived from Natural Resources Management Ministerial Council 2006, Harvey & Caton 2003 and DEWHA 2009)

The above recommendations bear a striking similarity to the US Coastal Zone Management Act 1972. No national Australian legislation has eventuated to date despite being recommended by two major national inquiries. It was Prime Minister Bob Hawke who required the Resources Assessment Commission to ‘inquire into Building, Tourism, Mariculture and associated development in Australia's coastal zone’. The terms of reference were to ‘examine and report on the future use of Australia's coastal zone resources with particular reference to the integrated management of building, tourism, mariculture and associated development, particularly outside metropolitan areas’ and to ‘examine and report on the use, including potential use, of regulatory and economic instruments and institutional arrangements to promote integrated coastal zone management’ (RAC 1993, p.1). The RAC reported in November 1993 and made sixty-nine recommendations in a comprehensive review of coastal management in Australia. While the report did not precisely define ICM it outlined the key elements that would underline such an approach. The Resources Assessment Commission emphasised ‘integrated resource management’ and the components that would
be essential to an integrated approach to coastal management. Importantly, it explained the connection between ‘integrated resource management’ and ‘coastal zone management’ as shown in Table 2.4 below.

Table 2.4 The Coastal Zone Inquiry

<table>
<thead>
<tr>
<th>5.5 Integrated Resource Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5.1 The management problems discussed in Chapter 4 demonstrate that attempts to deal with coastal zone issues on a sectoral basis, without regard to the consequences for other sectors, are frequently ineffective and inefficient. A holistic, long-term approach to national coastal zone issues requires that decisions about resource use be made within an integrated framework. Integration of resource management processes is thus a critical element of the ecologically sustainable development of Australia's coastal zone resources.</td>
</tr>
<tr>
<td>5.5.2 Integration of coastal zone management has four elements:</td>
</tr>
<tr>
<td>• Consideration of all values — ecological, economic, cultural, social and others — associated with a resource and its uses, and the effects of uses on those values in decision making;</td>
</tr>
<tr>
<td>• Integration of the effects of sectoral management activities within governments;</td>
</tr>
<tr>
<td>• Integration of the effects of management between spheres of government;</td>
</tr>
<tr>
<td>• Integration between governments and community and industry groups.</td>
</tr>
</tbody>
</table>

(Source: RAC 1993)

Furthermore, the RAC concluded that ‘there are major shortcomings in the systems of management of Australia’s coastal zone:

i. Different and usually uncoordinated approvals systems operate for public and private land;

ii. Management and use of resources spanning marine and terrestrial areas is particularly impeded by a lack of integration and coordination of management systems;

iii. Existing mechanisms do not provide for effective long-term management of coastal zone resources;

iv. Approvals procedures are complex, time consuming and often sequential rather than concurrent, making them costly for applicants and governments;

v. Although some Commonwealth, state and local government agencies have developed policies to achieve coastal zone management objectives, the policies and objectives are not often implemented and they are rarely integrated with social, economic and environmental goals’ (S 4.6.3) (RAC 1993, p.360).

The RAC concluded that:

Evidence to the Inquiry shows that the coastal zone is suffering the environmental and social stresses of continuing urbanisation, which is occurring both on the urban fringe of metropolitan areas and in an increasing number of coastal regions outside capital cities. If no action is taken to change the way in which coastal resources are used, there is a very
considerable risk that ecosystems will be destroyed, the recreational amenity of the coast will be degraded, and economic growth and employment opportunities will be lost; in short the collective benefits provided by the coastal zone will cease to be available to Australians (RAC 1993, p.358).

The key recommendations of the RAC were to establish a National Coastal Action program, a National Coastal Agency, a National Coastal Consultative Council and to enact a Coastal Resources Management Act. Importantly the RAC emphasised the need for the Commonwealth and states to act cooperatively (Rec. 5.6.6) and that the ‘identification of common principles to guide decision-making about the use of coastal zone resources is also necessary to facilitate integration’ (Rec. 7.04). It emphasised the critical point that ‘when the principles on which decisions are based are made public, the decision-making process is more transparent, consistent and systematic, and the scope for abuse of discretionary power by decision makers is limited’ (Rec. 7.04) (RAC 1993). This recommendation for the development of a set of national coastal principles is a persistent theme in both the academic and former national inquiries. It is also a fundamental question being considered in this thesis (research question 5). The RAC recommended a coastal governance model reflecting the key recommendations. This comprised a national coastal management agency, a national coastal consultative committee and a direct link to the Council of Australian Governments (COAG). Importantly, sixteen years later, the Australian Government has not adopted one of these recommendations.

The above discussion highlights the significant impediments to change in national coastal planning and management arrangements. Nevertheless, the Keating federal government made some progress in the immediate aftermath of the Coastal Zone Inquiry. In response to the RAC report, the Keating government developed the national coastal policy *Living on the Coast* (DEST 1995a). This included implementing a key recommendation of the RAC to establish a national coastal action program. This important initiative continued its development through the ‘Coastcare’ program, one of four programs funded by the federal Department of Environment’s Natural Heritage Trust. This has been a major contribution to funding coastal action programs at the local level (recently absorbed into the Caring for our Country Community Coastcare Program 2009). There has been no action on the establishment of a national coastal agency or a separate national coastal Act. Instead the emphasis at the national level has continued to be on voluntary partnerships and cooperative agreements as distinct from the legislative approach recommended by the RAC inquiry. Between 2003 and 2006, the Australian Government developed a ‘cooperative’ framework entailing collaboration between the federal and state governments based on a set of agreed areas of
common interest. The key documents are a *Framework for a National Cooperative Approach to Integrated Coastal Zone Management* (Natural Resources Management Ministerial Council 2003) and the subsequent *National Cooperative Approach to Integrated Coastal Zone Management — Framework and Implementation Plan* (Natural Resources Management Ministerial Council 2006). This framework is the current national coastal policy and identifies five areas for cooperation: land and marine based sources of pollution, managing climate change, introduced pest plants and animals, allocation and use of coastal resources and capacity building. The final report adopted in 2006 by the Natural Resources Management Ministerial Council outlined a set of priority actions for implementation. The national ‘framework’ represented a step forward in developing an integrated national coastal policy but, as will discussed further in this chapter, it had some serious omissions for dealing with the challenges of urban growth and climate change.

During 2007, as part of its election commitments, the opposition Labor Party announced a commitment to developing a new national coastal policy. On its election to office in November 2007, the Rudd government established a national parliamentary inquiry into climate change and environmental impacts on coastal communities. Over one hundred public submissions have been made to the inquiry throughout 2009 from a wide range of constituencies including all levels of government, the private sector and academics. Public hearings held in each state and territory raised many of the same messages including the need for a national approach to coastal management. In my own submission, I stressed that the *National Cooperative Approach to Integrated Coastal Zone Management — Framework and Implementation Plan* ‘skirted around the three most critical policy areas for action: climate change adaptation plans for managing rapid urban growth, a risk management plan particularly where significant urban development or key installations are located in low-lying areas and a set of agreed Council of Australian Governments (COAG) principles that outline the responsibilities of Federal, State and local Government’ (Norman 2008a, p.6).

Significant relevant submissions to the parliamentary inquiry are referred to and discussed throughout chapters 3, 4, 5 and particularly 6 in relation to possibilities for change. These include submissions made by the Victorian Coastal Council and the three regional coastal boards, Wellington Shire Council, Mornington Peninsula Shire Council, the National Sea Change Taskforce and the Insurance Council of Australia. The federal Department of Environment, Water, Heritage and the Arts, the federal Department of Climate Change and the Victorian Government made separate submissions. The federal Department of
Environment, Water, Heritage and the Arts submission reiterated a national commitment by the Rudd government to a national coastal policy:

The Government has committed to develop a national coastal policy with greater Federal Government involvement in policy and planning. As highlighted in this submission, DEWHA considers that coastal zone management requires greater policy attention and coordination between agencies and across jurisdictions to ensure that coastal communities are able to address the challenges posed by population growth and increasing environmental pressures, including climate change. In advising the Government on a national coastal policy, the Department will consider these issues together with the findings of the current inquiry (DEWHA 2008, p.10).

The federal parliamentary inquiry is scheduled to report in November 2009. There is an expectation from a wide range of stakeholders, as expressed in their submissions and subsequent evidence, that the federal government will take a more active role in integrated coastal planning and management in the future. Time will tell but the track record has not been good so far (Thom 2008).

The range of Australian coastal inquiries and the directions of the ‘cooperative’ model of coastal management in the National Cooperative Approach to Integrated Coastal Zone Management, show that the nature of federal government intervention has generally been limited to matters of agreed national interest with the implementation of coastal management and planning located predominantly at the state/territory and local level. A more detailed examination of the internal arrangements for coastal management is found in Section 2.4 below. It is sufficient to state at this point that Australia has adopted a coastal planning and management model of cooperative federalism based on agreed guidelines. The effectiveness of this model is examined in the place-based case studies in chapters 3, 4 and 5. The above discussion of ICM shows a continuing international and national interest in coastal management since the 1970s. The evolution of ICM provides an important background to the following discussions of contemporary understandings and development in ICM and, in relation to this thesis, what this means for coastal planning in Australia. As Sorensen (1997, p.3) states:

The concept of integrated coastal management (ICM) extends back 30 years. In its first decade the concept became a practice confined mostly to the United States, Australia, and the UN Regional Seas Program. There was enthusiasm and optimism among those who chose to follow that rising star. Integrated coastal management is now practiced all over the globe and it is part of the rhetoric for sustainable development. For many who have been
following the ICM star for decades, the optimism is now guarded because they have found out that ICM is a long swim against the current.

So, while there has been much activity in developing ICM throughout the world, application of the theory of ICM based on ‘integration’ has continued to be problematic. The following discussion moves to the ‘present’ to explore these issues and begins with some current definitions on ICM. This provides the context for a following discussion on the contemporary challenges in planning and management globally and within Australia.

2.2.3 Current definitions of ICM

The above discussion provided an outline of the origins of ICM and important contextual information. For the purposes of this thesis, the following discussion outlines definitions in current usage both internationally and within Australia. Cicin-Sain and Knecht (1998, p.461) define ICM as: ‘a continuous and dynamic process by which decisions are made for the sustainable use, development, and protection of coastal and marine areas and resources’. They argue that the goals of integrated coastal management are ‘to obtain sustainable development of coastal and marine areas, to reduce vulnerability of coastal areas and their inhabitants to natural hazards such as storms and accelerating sea-level rise, and to maintain essential ecological processes, life support systems, and biological diversity in coastal and marine areas’ (Cicin-Sain & Knecht 1998, p.279). They suggest that there are:

Four key features which are central to the ICM approach: the use of a set of principles based on the special character of the coasts and oceans to guide ICM decision making; the need to ultimately work at ICM from both directions — bottom-up (involving the community level) and top-down (involving the national government); the need to have a coordinating mechanism or mechanisms to bring together coastal and ocean sectors, different levels of government, users, and the public in the ICM process and the need to have good (relevant) science available on a timely basis to inform the ICM decision-making process (Cicin-Sain & Knecht 1998, p.280).

This theoretical framework provides an important backdrop to present-day definitions guiding ICM globally and within Australia. It is consistent with the Sorensen definition of ICM described in Chapter 1. Furthermore, it emphasises on the value of guiding principles, the need for engagement and coordination, and the importance of connecting science with land use and resource management. These considerations are further explored in the case studies in chapters 3, 4 and 5. The definitions by the United Nations conventions, associated regional agreements and further interpretation by nation states including Australia also provide insight into the range of definitions of ICM. They all recognise the dynamic coastal environment, the
complex governance arrangements and the desired outcome for sustainable development, all of which are core concepts to this thesis. The United Nations Environment Program (UNEP) is responsible for ICM at a global level. The UNEP has adopted ICM as its preferred approach to sustainable development and resource use of coastal areas. The UNEP’s primary focus in this area is through the Regional Seas Program arising from the recommendations of the United Nations Conference on the Human Environment, Stockholm 1972. The Regional Seas Program involves nearly 150 countries including a wide range of European, African and Asian nations. The programs are generally managed through action plans and implemented by regional protocols (UNEP 2009a,b).

The Mediterranean program is one of the UNEP’s flagship coastal programs incorporating integrated coastal management. The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) is a major statement for coastal management for European nations. Article 2 of the convention defines ICM or ‘integrated coastal zone management’ as ‘a dynamic process for the sustainable management and use of coastal zones, taking into account at the time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the maritime orientation of certain activities and uses and their impact on both the marine and land parts’ (UNEP 2009a, p.72). Building on this, the recent Protocol on Integrated Coastal Zone Management in the Mediterranean outlines six objectives for ICM. Of particular relevance is the first objective to ‘facilitate, through the rational planning of activities, the sustainable development of coastal zones by ensuring that the environment and landscapes are taken into account in harmony with economic, social and cultural development’ (UNEP 2009b). The objectives are supported by ten principles that cover environmental, social and economic dimensions and specifically include land use planning, governance, ecosystems and the concepts of carrying capacity, sustainable development and transparent decision making processes. The signing of this protocol represents the culmination of eight years of work commencing with a meeting in Monaco in 2001 and concluding with the signature meeting in Madrid on 20–21 January 2008. It represents a further development in the definition and concepts of ICM and includes many of the key components of the definition by Cican-Sain and Knecht (1998) discussed earlier.

In relation to the United States, the US Coastal Zone Management Act 1972 (CZMA) (as amended in 2005) represents a more formally integrated approach to coastal management
involving all levels of government and lays the basis for ICM implementation. Section 302 of the Act states the congressional findings in relation to land use activities:

The key to more effective protection use of the land and water resources of the coastal zone is to encourage the states to exercise their full authority over the land and waters in the coastal zone by assisting the states, in cooperation with federal and local governments and other vitally affected interests, in developing land and water projects for the coastal zone, including unified policies, criteria, standards, methods, and processes for dealing with land and water use decisions of more than local significance (S302 (i)).

The more recently included ‘coastal zone enhancement objective’ is defined by nine sub-objectives including the ‘development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources’ (S309 (5) CZMA 1972). The cornerstone of the US approach to coastal management is what is described as the ‘federal consistency’ provision (S307, CZMA 1972). This provision requires that: ‘…federal agency activities that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone (also referred to as coastal uses or resources and coastal effects) must be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program’ (NOAA 2009a). The primary tool for implementation is the development of ‘coastal management plans’ that are approved by the federal government. The principal administering authority is the National Oceanic and Atmospheric Administration, charged with the responsibility of managing ‘95,331 miles of Ocean and Great Lakes coastlines home to almost 153 million people, about 53 percent or the total US population’ (NOAA 2009b). The participation by the states in this program is voluntary. However, there are two major incentives for the states: the first is to manage federal government activity in a state’s coastal region and the second is the substantial coastal grants program that flows as a result of having an agreed coastal management plan (CMP) that all levels of government have signed on to. Thirty-four states are formally part of the program with another one in the process of formulating a CMP (NOAA 2009b). The effectiveness of the US approach is further addressed under Section 2.4.

The Australian Government’s principal coastal policy describes ICM as follows: ‘…the fundamental goal of ICZM is to maintain, restore or improve the quality of coastal ecosystems and the societies they support’ (Natural Resource Management Ministerial
Council 2006, p.7). ‘A defining feature of ICZM is that it seeks to address both development and conservation needs within a geographically defined place — a single community, estuary or nation — and within a specified timeframe’ (Natural Resources Management Ministerial Council 2006, p.7). A key aspect of this definition is that it seeks to improve the quality of the environment, not just hold the line or repair the damage. In this respect it sets a precedent for the States and Territories to follow. As discussed in Chapter 1, the Victorian Coastal Strategy 2008 defines integrated coastal zone management as ‘a framework that attempts to integrate planning and management in a region, such as the State of Victoria, across the land and sea surface and the private and public land interface, to treat the coastal zone (which includes the catchment) as one biophysical entity’. This definition is inclusive in nature both in incorporating the physical catchment to coast continuum and the ‘planning’ and ‘management’ dimensions.

The developing ‘inclusiveness’ of ICM represents the culmination of an evolving definition of ICM. This is a welcome step in that it represents the development of a more holistic approach to ICM, integrating a wide range of considerations. The possible disadvantage is that the complexity becomes overwhelming for on-the-ground decision makers and/or ICM is everything to everyone and no-one takes responsibility. This issue is raised in the focus groups for this research as discussed in the case studies (chapters 3, 4 and 5).

2.3 Global developments

There are two major global phenomena that are directly affecting the world’s coasts — urbanisation and climate change (Norman 2008a,b, Norman 2009a,b). The following section discusses the two global developments of ‘coastal urbanisation’ and ‘the impacts of climate change’. The former has been a long-term trend and the latter a more recently understood phenomenon. The UN Habitat State of the Worlds Cities 2008/9 report estimates that ‘half of humanity now lives in cities, and within two decades, nearly 60 percent of the world’s people will be urban dwellers’ (UN Habitat 2008, p.vi). The Intergovernmental Panel on Climate Change has published its climate change predictions and the consequent projections for sea level rise and extreme weather events (IPCC 2007). The impact and the intersection of these two global developments have potential consequences for settlements and infrastructure overall, but for the purposes of this thesis they are examined specifically in relation to the coastal environment. The following discussion of global developments provides a context for a more detailed examination of developments affecting the Victorian coast.
2.3.1 Coastal urbanisation

The *State of World Cities 2008/9* report (UN Habitat 2008) provides an insight into urbanisation trends throughout the world. The report indicates that urbanisation is manifesting itself in different ways in different parts of the world. In Africa urban growth is based around the principal city (urban primacy and slum formation), in India satellite towns are developing around major cities such as New Delhi and Mumbai, and in China there is a definite trend to the east coast resulting in very significant coastal urbanisation. Coastal urbanisation continues to be a very significant phenomenon. As indicated in the report, ‘geography matters’:

Coastal areas have always been the preferred locations for human settlements, both in ancient times and today. Cities located near the sea have an obvious advantage: they provide access to sea trade routes and links. Globally they are the most urbanised ecosystems, with 65 percent of their inhabitants residing in urban areas; Europe, North America, Oceania, and Latin America have the most urbanise coastal areas, with more than 80 percent of the population along the coastlines living in cities (UN Habitat 2008, p.4).

The other major feature is that ‘14 of the world’s 19 largest cities are port cities located along a coastline or a river delta’ (UN Habitat 2008, p.5). These include developed nation cities such as Tokyo and New York, as well as developing nation cities such as Shanghai and Manila. As well, the emergence of new megacities in the Asian region is of direct relevance to Australia. For example, China’s coastal zone ‘represents just 2 per cent of the total land area but is home to 23 per cent of the urban population of the country and 14 per cent of the total population’ (UN Habitat 2008, p.5). As Anna Tibaijuka, Executive Director UN Habitat states: ‘From China to Columbia, and everywhere in between, national and local governments are making choices that promote equity and sustainability in cities. These governments recognise that cities are not just part of the problem; they are, and must be part of the solution’ (UN Habitat 2008, Foreword). Figure 2.1 provides a clear illustration of the extent of global coastal urbanisation. It is striking that in every region ‘coastal’ and ‘coastal low’ elevation are experiencing the highest levels of urbanisation. The extent of urbanised coastal low elevation has significant implications for planning for coastal inundation, a major issue discussed in Section 2.3.2.

The rate of urban growth in Asian cities is phenomenal: ‘[of the ]100 fastest growing cities with populations of more than 1 million in the world, 66 are in Asia’ (UN Habitat 2008, p.20). Furthermore, ‘china’s eastern and southern coastal areas have experienced rapid urban
growth, making them the fastest growing cities in Asia’ (UN Habitat 2008, p.30).

**Figure 2.1 Global coastal urbanisation**

![Figure 2.1 Global coastal urbanisation](Source: UN Habitat 2008, p.5)

The environmental impact of increasing coastal urbanisation poses significant challenges for coastal planning and management. The key policy responses often bring urban and regional planning or spatial planning and integrated coastal management together. Urban and regional planning focussed on the social and economic drivers of urban growth involving a suite of responses including legislation, strategic planning, policies and local implementation planning tools such as planning schemes and guidelines. More recently urban and regional planning has been much more concerned with environmental sustainability and coastal planning (Gurran *et al.* 2008). Like ICM, urban and regional planning is practised in different ways and at different levels of government in different parts of the world. In Europe there has been a long tradition of national spatial planning providing an overall framework for managing the pattern of urban growth at the macro level (Netherlands Government 2007). This has been often supported by a national coastal policy. For example, the United Kingdom has a national planning policy framework and has recently released a draft national coastal policy (Office of the Deputy Prime Minister 2007). The USA has its *Coastal Zone Management Act 1972* and President Obama has established the Office of Urban Affairs in the White House (White House 2009). Closer to Australia, nations including Indonesia, Malaysia, India, Korea and Japan have national urban programs and are working together through regional networks like PEMSEA, discussed earlier in the chapter.
Coastal urbanisation is a long-term issue. All the indications are that at a global level this will only increase, particularly in the Asia Pacific region (UN Habitat 2008). The global implications for ICM are that the scale and intensity of the impact on the coastal environment will increase and require even greater integration and planning in the future. The consequence is that the connection between urban and regional planning (managing the spatial consequences of urban population and coastal urban growth) and ICM (managing the environmental impacts on the coastal environment) will need to be much closer at all levels of government. The impact of climate change, particularly coastal inundation, will make this relationship even more important in order to manage a new level of risk and uncertainty.

The term ‘resilience’ is emerging in the academic literature on urban and regional planning: *Resilient Cities* (Newman *et al.* 2009); in coastal management: *Planning for Coastal Resilience* (Beatley 2009); and in climate change adaptation: *Governing Sustainability* (Adger & Jordan 2009). I suggest that this is a response to the combined complexity of urbanisation and climate change. The above has discussed global coastal urbanisations and its significant implications for ICM. The following section discusses the more recent coastal challenge, planning for climate change.

2.3.2 Coastal Planning and Climate Change

The global impact of climate change on coastal environments will be very significant according to the projections by the IPCC, whose Synthesis Report 2007 highlights that the most vulnerable communities will be in ‘coastal and river plains, those whose economies are closely linked with climate sensitive resources and those in areas prone to extreme weather events, especially where rapid urbanisation is occurring’ (IPCC 2007, p.26). The report confirms that ‘sea level rise under warming is inevitable’ (IPCC 2007, p.67) and continues to forecast under current scenarios a global sea level rise of 0.3 to 0.8 metres by 2100, with the melting of the ice sheets possibly adding a number of metres. This will have a substantial impact on coastal areas around the world. Specifically the IPCC report states:

Coasts are projected to be exposed to increasing risks, including coastal erosion, due to climate change and sea level rise. The effect will be exacerbated by increasing human induced pressures on coastal areas (very high confidence); …By the 2080s many more millions of people are projected to experience floods every year due to sea level rise. The numbers affected will be largest in the densely populated and low-lying megadeltas of Asia and
Africa while small islands are especially vulnerable (very high confidence) (IPCC 2007, p.48).

Climate change impacts will be diverse, involving heat, drought, extreme weather impacts, and coastal inundation. These impacts will affect food and water security generally and possibly require relocation of coastal communities. The scope of these impacts is significant and recognised but cannot all be addressed in this thesis. Planning for coastal inundation is selected here as an indicator of future impacts of climate change on the coast. Coastal vulnerability stemming from sea level rise, storm surge and coastal erosion is challenging traditional land use systems. The level of uncertainty, the non-linear nature of the projected impact and the rate of change collectively make for a new and more dynamic scenario for land use planning. Urban populations will be affected differently depending on location, scale and capacity to adapt to changing climate. The poorer urban populations of developing nations will be most vulnerable to sea level rise and storm surge. UN Habitat has recognised this with the 2008 UN Cities and Climate Change initiative as part of the Sustainable Urban Development program. The first four pilot countries in this program are Mozambique, Uganda, the Philippines and Ecuador (i.e. cities of Maputo, Kampala, Sarsagon and Esmeraldas). UN Habitat is particularly concerned with the impact of sea level rise on coastal cities and in particular the impact on ‘water and sanitation systems’ in coastal cities. The potential for environmental refugees as a result of sea level rise and storm surge will also have regional implications for Australia. This is highlighted by Alan Dupont and Graeme Pearman, who conclude that ‘sea level rise is of particular concern because of the density of coastal populations and the potential for large scale displacement of people in Asia’ (Dupont & Pearman 2006, p.viii). More recently, the Pacific Islands Forum, comprising sixteen nations including Australia, expressed concerns at its 2008 meeting and concluded to:

FURTHER COMMIT the members of the Pacific Islands Forum to continue to advocate and support the recognition, in all international fora, of the urgent social, economic and security threats caused by the adverse impacts of climate change and sea level rise to our territorial integrity and continued existence as viable dynamic communities; and of the potential for climate change to impact on intranational and international security (Pacific Islands Forum 2008).

Coastal urbanisation as discussed above is occurring rapidly in the Asia–Pacific region (Sekhar 2005, Harvey 2006). In an assessment of ‘risk of climate change in low elevation coastal zones’, McGranahan et al. (2007, p.26) estimate that ten countries’ population in ‘low elevation coastal zones’ account for three-quarters of the world’s population in that zone:
China, India, Bangladesh, Vietnam, Indonesia, Japan, Egypt, the USA, Thailand and the Philippines. Most of these countries are in the Asia-Pacific region and several are near Australia. Climate change and its impact on the coastal environment is thus a global and regional issue with significant implications for Australia and its surrounding region.

While there continues to be considerable global attention to mitigation measures for climate change, many nations are now undertaking adaptation measures in coastal areas, particularly in relation to expected coastal inundation from sea level rise and storm surge. A useful definition of adaptation is provided in a national report to the Canadian Government:

> Adaptation to climate change is any activity that reduces the negative impacts of climate change and/or takes advantage of new opportunities that may be presented. Adaptation includes activities that are taken before impacts are observed (anticipatory) and after impacts have been felt (reactive). Both anticipatory and reactive adaptation can be planned (i.e. the result of deliberative policy decisions), and reactive adaptation can also occur spontaneously. In most circumstances, anticipatory planned adaptations will occur lower long-term costs and be more effective than reactive adaptations (Lemmen et al. 2008, p.5).

The cost of action and inaction on climate change was originally highlighted by the Stern Review, which stated that the cost of action in reducing greenhouse emissions would be much less than inaction ‘and can be limited to around 1% of global GDP each year’ (Stern 2006, p. iv). More specifically in relation to coastal inundation, the subsequent report by the European Environment Agency (EEA 2007) estimates a twelvefold difference between action and inaction. The EEA estimates that action on coastal adaptation for the European Union could cost $US1.5billion per annum compared to $US18billion per annum for inaction. The principal cost of this is the value of the loss of coastal land (EEA 2007, Table 4.5). This would have to be regarded as an absolute minimum given all the other costs associated with inundation, for example, as demonstrated in post-Katrina New Orleans (Blakely 2007).

Planning for coastal inundation may be a relatively new phenomenon for some countries in relation to climate change. However, there are parts of the world that have been managing such issues for centuries, notably the Netherlands and cities such as Venice. Land use planning responses for coastal inundation have taken various forms both within Australia and overseas. Geography, urban planning and natural resource management regulatory and policy frameworks, and institutional and financial capacity has influenced land use responses (Norman 2009b). Countries such as the Netherlands and cities such as Venice have for many years developed and implemented a range of measures for coastal inundation. Other nations
such as Australia are only beginning to consider these issues in the context of climate change. A very clear message emerging out of Europe, particularly the Netherlands, is that responses should work ‘with nature’, not ‘against nature’, as the latter is simply not economically or environmentally sustainable. In other words, we cannot continue to build larger and larger defences creating consequent issues for internal pumping and drainage at enormous cost (Netherlands Government 2007, European Commission 2009).

The consequence of the above for Australia is the need to find a suite of measures that can be implemented and adapted to local circumstance to reduce/minimise future risk to coastal communities. The model developed by the IPCC (1993) and adopted by the Victorian Department of Planning and Community Development provides for a continuum: do nothing, retreat, adapt and/or defend. This model provides a useful conceptual framework for exploring the current and future possible land use responses to the impact of sea level rise and storm surge on the coast. Each country is developing a range of measures along this continuum often influenced as much by history and culture as geography. Norman (2009b) provides an international review of land use responses to coastal inundation, including the more recent projected impacts of climate change. Nations with similar land use planning regimes (United Kingdom, the USA, Canada, South Africa and New Zealand) are just beginning to undertake adaptive measures and there are even more tentative responses by nations within the Asia-Pacific region. In Victoria, the experience is at a formative stage with state and local governments exploring appropriate policy responses flowing from the VCS 2008, discussed below (Norman 2009b).

Planning for coastal inundation is generating new approaches to urban planning. Three examples are given below to illustrate the range of planning responses for sea level rise: New Zealand, London and SE Asia. New Zealand has a national approach to coastal management through a national coastal policy and the New Zealand Resources Management Act 1991, where sea level rise is defined as a ‘natural hazard’ (S30, 31, 35). There are two important documents for local government to provide guidance in planning for climate change (New Zealand Government 2008a,b). The two government documents provide comprehensive and practical guidelines for managing sea level rise and coastal inundation providing a risk management framework for local government to make decisions regarding planning applications. Preparing for Climate Change (New Zealand Government 2008a) examines the impact of climate change including sea level rise and storm surge, and the consequences for local government, and advises councils on how they can incorporate climate into decision
making. The more detailed coastal hazards manual (New Zealand Government 2008b) identifies six categories of planning responses including information and education, land use planning regulation, building consent controls and financial mechanisms. The New Zealand approach is a good model of comprehensive risk management planning for climate change at the national, regional and local levels. These issues are further discussed in the case studies where relevant and again in Chapter 6.

The United Kingdom is adopting a flexible approach to coastal protection from sea level rise and storm surge. The UK strategy is one of ‘managed retreat’ or ‘managed realignment’. The UK Government has committed significant expenditure to mapping 6000 miles of the coastline to determine which areas should be protected and which left to nature. The government has also indicated that it will be ‘offering no compensation where sea defences are allowed to elapse’ (Fletcher 2008, p6). At the city level, the mayor of London released The London Climate Change Adaptation Strategy (draft report) in August 2008. It identifies five sources of flooding for London: the sea (tidal flooding), the Thames and tributaries of the Thames, heavy rainfall, the sewers and rising groundwater (Greater London Authority 2008, p.11). The Great London Authority has identified at risk 1.25 million people and 481,180 properties as well as extensive ‘social and civil infrastructure’. More specifically, the Thames Estuary 2100 project has adopted a ‘trigger’ response to sea level rise outlining a range of adaptive responses to points of sea level rise under the categories: prevent, prepare, response and recover, i.e. what actions should occur in response to different levels of sea level rise and storm surge. The approach to planning for climate change in London is methodical and detailed and takes a wider view of coastal inundation in addressing economic, social and environmental considerations. For example, the London strategy considers the needs of tenants in public or social housing who depend on the actions of their landlords to make any necessary adaptive changes. It places responsibilities on all sectors in terms of the costs of adaptation and there is a strong emphasis on building community resilience. In recommending that developers on flood risk areas contribute to emergency flood plans, it sends a clear message that those who choose to build in high risk areas will in the future pay a premium and it will not be at the broader community’s expense (Greater London Authority 2008, p.27).

The third example is PEMSEA, discussed earlier. The PEMSEA Network of Local Governments for Sustainable Coastal Development (PNLG) and the PEMSEA Small Grants Program support the local coastal strategies. Planning for sea level rise and coastal inundation is seen as a key element for PEMSEA. Many of the islands in the Asia–Pacific region are
…… proactive disaster risk management in Asia has to become part of the development agenda to deal with the growing variety and intensity of hazards in general, and that coastal areas should receive special attention due to economic activities as well as emerging long term risk scenarios associated with climate change, global warming and sea level rise in particular, Director, Asian Disaster Preparedness Centre (Arambepola 2007, p.12).

Importantly, the overall approach through PEMSEA is to use ICM as the tool for planning for coastal inundation. The PEMSEA ICM framework identifies key components for achieving sustainable development of the coastal and marine areas: natural and human made disaster prevention and response management (including sea level rise, tsunamis, tidal storms and flooding); natural coastal habitat protection, restoration and management; water use and supply management; pollution and waste reduction management and food security and livelihood management. PEMSEA has identified coastal land use zoning as the key tool for coastal planning. Examples of best practice identified by PEMSEA include Xiamen (China) — a ‘functional zonation scheme’ as a model of a sea use zoning integrated into the city’s land use scheme; Sihanoukville (Cambodia) — a ‘coastal use zoning scheme’ as a zoning scheme for both land and sea in one unit to enable an integrated approach to coastal management; and Danang (Vietnam) — a ‘coastal use zoning’ that manages and allocates spatial uses for sea resources (PEMSEA 2009, p.40).

This experience by PEMSEA in South East Asia is significant in its recognition that the links between urban or land use planning systems, climate change impacts and integrated coastal management are crucial to finding a more sustainable approach to coastal management. Planning for sea level rise and storm surge is only one component of planning for climate change. Other issues for the coast will include extreme weather events such as drought, fire and heat, depending on the location. Improved urban design of settlements and infrastructure can contribute to both adaptation and mitigation of climate change (Hallegatte 2009). The discussion above provides an indication of the current policy responses in planning for coastal inundation in coastal environments. As stated earlier, it is a very significant issue but not the only one, as indicated in the Victorian Climate Change Green Paper (Department of Premier and Cabinet 2009). For example, the 1983 and 2009 bushfires in Victoria were an indication
of other extreme weather events that coastal populations may face in the very near future.
Planning for extreme weather events and uncertainty will require new approaches to urban
planning and coastal management in order to deal with uncertainty. Some of the policy
responses to urbanisation and climate change may contribute to a more sustainable approach
to coastal management. These include increasing resilience (Beatley 2009), planning for
uncertainty (Hallegatte 2009), and a more systems approach to building local adaptive
capacity (Smith et al. 2008a, 2008b). These are discussed below and again in Chapter 6.

2.4 Australian developments

The Australian coastal environment continues to experience increasing coastal urbanisation
and potentially significant impacts from climate change. The following is a discussion of the
current Australian urban and coastal planning responses to these twin pressures. The focus is
on the national level with examples drawn from state and local situations to illustrate
implementation at the local level. Coastal planning and management in Victoria is covered in
greater detail to provide the context for the place-based case studies in chapters 3, 4 and 5.

2.4.1 Coastal Planning in Australia

In the Australian federal system, all three levels of government are involved in managing the
cost. Overall, state and local government are primarily responsible for land use planning and
environmental management of coastal lands and seaward to three nautical miles. The federal
government is responsible for three to two hundred nautical miles seaward, known as the
exclusive economic zone. However, it should be noted that the power of the federal
government has significantly widened over recent decades in relation to the environment as a
result of High Court decisions, notably the Franklin River dams case in 1983 (Crowley 2002).
In particular, the Commonwealth Environment Protection and Biodiversity Conservation Act
1999 (EPBC Act), dealing with matters of national environmental significance has directly
enhanced Commonwealth (federal) power. The EPBC Act is the key national environmental
legislation and defines seven matters of national environmental significance: world heritage
sites, national heritage places, wetlands of international importance (RAMSAR sites),
nationally threatened species and ecological communities, migratory species, Commonwealth
marine areas and nuclear actions (DEWHA 2009). Through these matters of national
environmental significance the Australian Government now has the power to override some
state and local decisions including coastal environments. The EPBC Act poses two questions
for the federal minister for the environment:
i. Is the proposed action likely to have a significant impact on a matter of national environmental significance?

ii. Is the proposed action likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land)?

The EPBC Act also has an important provision for ‘strategic assessments’ (S146) that can be applied to areas of significant growth or complex projects. In this respect the EPBC Act could be applied directly to coastal areas experiencing rapid growth. This provision is also designed to assess the cumulative impact of a range of government policies on a particular area. This provision has been used only to a limited extent to date and could be further explored in terms of any future governance arrangements for coastal management.

The Australian Government is also involved as a result of significant federal funding programs, including the Caring for Our Country funding program to community groups. A key component of this program is Coastcare, which involves over 60,000 volunteers. Coastcare allocated $22.5 million to community groups during the 2008 Coastcare week (Minister for the Environment, Heritage and the Arts, 2008). Finally, where the Australian Government is the owner of the land or sea, it is not affected by state and local government land use planning regulations. This is an important provision that will be discussed in detail in the Point Nepean case study in Chapter 3. There is no equivalent provision in Australian legislation that binds the national government like the ‘federal interest’ provision in the US Coastal Zone Management Act 1972. This matter requires further consideration in relation to future coastal governance arrangements in Australia.

As discussed in Section 2.2.2, the current national coastal policy is the National Approach to Integrated Coastal Zone Management — Framework and Implementation Plan (Natural Resource Management Ministerial Council 2006). To support the national framework, there is an array of national governance arrangements and policy initiatives as shown below. Table 2.5 provides a list of the principal coastal planning and management groups at the national level. While not exhaustive, it paints a picture of a national government on the one hand heavily engaged in coastal planning and management and on the other hand stating clearly
that management of the Australian coast is largely a cooperative venture and essentially a state and local government matter.

Table 2.5  National coastal management and planning groups 2009

<table>
<thead>
<tr>
<th>Coastal management and planning group</th>
<th>Major policy initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Resource Management Standing Committee</td>
<td>Meeting of state and territory relevant departmental secretaries to implement Ministerial Council decisions</td>
</tr>
<tr>
<td>Marine and Coastal Committee (MACC): sub committee of the NRMCC</td>
<td>Meeting of senior bureaucrats responsible for marine management at the state and national level</td>
</tr>
<tr>
<td>Intergovernmental Coastal Advisory Group (ICAG)</td>
<td>Meeting of senior bureaucrats responsible for coastal management at the state and national level</td>
</tr>
<tr>
<td>National Introduced Marine Pests Coordination Group (NIMPGG)</td>
<td>National System for the Prevention and Management of Marine Pest Incursions</td>
</tr>
<tr>
<td>Local Government and Planning Ministers Council</td>
<td>Review of strategic planning for metropolitan areas in each jurisdiction</td>
</tr>
<tr>
<td>Planning Officials Group</td>
<td>Regulatory reform on statutory planning codes</td>
</tr>
<tr>
<td>National Development Assessment Forum</td>
<td>Model code for urban planning</td>
</tr>
</tbody>
</table>

(Source: derived from federal Departments of Environment, Water, Heritage and the Arts; Climate Change; Infrastructure, Transport, Regional Development and Local Government 2009)

While at the national level there has been active engagement in ICM, the same cannot be said in relation to urban planning. This is important to appreciate as it partly explains some of the apparent disjuncture between ICM and urban planning within Australia. Urban planning is largely seen as state and local government responsibilities and there is little national coordination of activity. ICM is often perceived as predominantly responsible for public land management and urban planning predominantly responsible for private land use. While ICM is not defined this way as discussed in Section 2.3, it is often the way it is practised, as will be shown in chapters 3, 4 and 5. In relation to urban planning, there have been two significant national government forays into land use planning: during the Whitlam government 1972–75 with the Department of Urban and Regional Development and the Hawke/Keating governments 1983–96 with the Building Better Cities Program and related urban initiatives (Stretton 1989, Troy 1995) and the National Housing Strategy 1992. Orchard’s analysis of
national urban policy describes the 1960s to the late 1980s as being ‘divided into three main phases: a ‘social democratic phase’ under Whitlam, what can be loosely called a ‘libertarian’ phase under Fraser and a ‘corporatist’ phase under Hawke (Orchard 1995, p.65). Orchard then goes on to describe the way in which these approaches have spatially manifested themselves — the ‘social democratic’ city in the 1970s, the ‘compact city’, which first emerged in the late 1970s, and the ‘productive city’, which emerged in the late 1980s’ (Orchard 1995, p.85). The early 1990s saw several national urban reviews including the Australian Urban and Regional Development Review, the Taskforce on Regional Development and the Taskforce on Urban Design. Paralleling these was an inquiry by the House of Representatives into urban planning and Australia cities, Long Term Strategies: Report on Patterns of Urban Settlement 1992. These reviews culminated in Community and Nation: A National Urban and Regional Development Agenda (Keating 1995).

The Sustainable Cities inquiry by the House of Representatives Standing Committee on Environment and Heritage 2005 is the most recently completed national review of cities in Australia. The terms of reference were: the environmental and social impacts of sprawling urban development; the major determinants of urban settlement patterns and desirable patterns of development for the growth of Australian cities; a ‘blueprint’ for ecologically sustainable patterns of settlement, with particular reference to eco-efficiency and equity in the provision of services and infrastructure; measures to reduce the environmental, social and economic costs of continuing urban expansion, and mechanisms for the Commonwealth to bring about urban development reform and promote ecologically sustainable patterns of settlement’ (Australia Parliament 2005, p.xiii). The final report provides a recent account of the state of Australian cities and provides thirty-two recommendations with the first three recommendations forming the core of the findings. The inquiry recommended the establishment of an Australian Sustainability Charter that ‘sets key national targets across a number of areas, including water, transport, energy, building design and planning’ (R1) against which government policy proposals would be assessed (R2). It further recommends that a Sustainability Commission be established and headed by a National Sustainability Commissioner (R3). A specific section on ‘coastal cities’ recognises the pressures on Australian coasts concluding ‘that problems experienced in coastal areas may be more acute than those in the major cities and that coastal councils’ environmental challenges are a consequence of the rapid growth and demographic composition of their population’ (Australia Parliament 2005, p.49). As with the national coastal inquiries discussed above, none of the key recommendations have been adopted. The important point is that the series of national
inquiries and reports into coastal planning and management and urban and regional planning all point in the same direction: the need for a national policy response to planning for urban growth including coastal environments. The impediments to achieving change are explored in the case studies and Chapter 6 with implications for the theory and practice of ICM in the future.

During 2008, the Development Assessment Forum (DAF) was established by the Australian Government with the objective that ‘planning systems must adopt more efficient processes that deliver the best possible social, environmental and economic outcomes’ (DAF 2009). Initially it had an active program of regulatory reform producing reports on streamlining statutory planning and best practice for strategic planning. However, it has not met since 2007, which suggests a scaling-back of this activity. During 2008, the Australian Government signalled a new commitment with the establishment of a Major Cities Unit in the Department of Infrastructure, Transport, Regional Development and Local Government, to work with States and Territories on matters important to ‘identify opportunities where federal leadership can make a difference to the prosperity of our cities and the wellbeing of their residents’ (Infrastructure Australia 2009). It is early in inception but is a step forward in recognising a role for national government in urban planning. More recently in 2009, there are signs of an emerging reinterest in a national urban agenda. The Council of Australian Governments has resolved to undertake a review of strategic planning in States and Territories (COAG 2009).

In another important recent development, the Ministers for Local Government and Planning Forum agreed to ‘participate in the development of a National Urban Policy, which will be led by the Australian Government through the Major Cities Unit’ (Local Government and Planning Ministers Council May 2009). This renewed national interest is only at an embryonic stage. To really understand urban planning and in particular coastal planning in Australia, it is necessary to look at the Australian States and Territories.

All States and Territories with the exception of the ACT undertake coastal planning. A detailed examination of coastal planning in each jurisdiction is beyond the scope of this thesis, except for the State of Victoria being the location of the case studies in chapters 3, 4 and 5. However, some of the more distinctive features of each jurisdiction are highlighted to illustrate the range and depth of local approaches to coastal planning. For example, what is applicable to saving marine turtles in the Northern Territory is different to proposed canal developments in Hobart. A summary of the principal coastal governance arrangements is shown in Appendix 1. A number of these arrangements and coastal planning policies are
currently being reviewed in response to coastal urbanisation and the impact of climate change, particularly coastal inundation (VCC 2008, NSW Government 2009, Queensland Government 2009). There is also a stronger focus on marine protection with a significant number of marine parks being introduced in Victoria (Parks Victoria 2009a,b) and NSW (Marine Parks Authority 2009). This clearly builds on the major contribution and learning from the Great Barrier Reef Marine Park Authority (GBRMPA 2009). There is not the scope to cover the substantial research and initiatives in the marine environment, given the focus of this research. However, it is very important to recognise that the marine environment is a critical part of coastal planning and management. The move to better integrated coastal and marine planning is considered an essential improvement to ICM in Australia.

As the case studies on chapters 3, 4 and 5 are based in Victoria, it is appropriate to examine coastal governance arrangements in Victoria more closely. The Victorian coast is approximately 2000 kilometres long and extends from the township of Nelson (South Australian border) to Mallacoota (New South Wales border). A distinctive characteristic of the Victorian coast is that only four per cent of the Victorian coastline is privately owned with ninety-six per cent remaining in public ownership (VCC 2008, p.8). The Coastal Management Act 1995 prescribes the policy framework for the Victorian Coastal Strategy which guides coastal planning in Victoria (Appendix 2). The other significant legislation is the Planning and Environment Act 1987 (see Appendix 3). The Coastal Management Act 1995 (S15:1) requires the Victorian Coastal Strategy to ‘ensure the protection of significant environmental features of the coast; provide clear direction for the future use of the coast including the marine environment; identify suitable development areas and development opportunities on the coast; and ensure the sustainable use of natural coastal resources’ (CMA 1995, p.13). The Victorian Coastal Strategy 2008 establishes a hierarchy of principles to assist decision-making. These are:

a) Provide for the protection of significant environmental and cultural values  
b) Undertake integrated planning and provide clear direction for the future  
c) Ensure the sustainable use of natural coastal resources  
d) Ensure development on the coast is located within modified and resilient environments where the demand is evident and the impact can be managed (VCC 2008, p.21).
The Victorian Coastal Council (VCC) and the three regional boards (Gippsland, Central and Western) facilitate the implementation of the Victorian Coastal Strategy 2008. The VCC and the regional boards are established under the terms of the *Coastal Management Act 1995* and the principal function of the VCC and the regional boards is to advise the Minister for the Environment and implement the VCS at the regional and local level. The key policy instruments provided for under the *Coastal Management Act 1995* include the VCS 2008 for broader policy guidance, and coastal actions plans (CAP) and coastal management plans (CMP) local guidelines for regional and local implementation. As background and for referral throughout this thesis, an explanation on the Victorian coastal management arrangements including the role of these policy instruments is provided in Appendix 2. Similarly an explanation of the State Planning Policy Framework (SPPF) under the Victorian *Planning and Environment Act 1987* is also provided in Appendix 3. Both are critical to implementing state coastal policy in Victoria.

The key instrument for implementing the VCS 2008 is an amendment to the SPPF (Clause 15.08). Immediately following the release of the VCS 2008, the Victorian Minister for Planning amended the SPPF to incorporate direct reference to the VCS 2008 to state that ‘decision-making by planning authorities and responsible authorities should apply the hierarchy of principles for coastal planning and management as set out in the Victorian Coastal Strategy 2008’ (Clause15.08–2). This amendment included the coastal urban growth recommendations in the *Coastal Spaces* report (discussed below), outlining a coastal settlement plan for Victoria. Clause 15 of the SPPF also included a new section on managing coastal hazards and the coastal impacts of climate change to give some statutory support to a new state policy in the VCS 2008, to ‘plan for sea level rise of not less than 0.8 metres by 2100’ (15.08-2). This is discussed under climate change in Section 2.4.3 and subsequently in this thesis. This was the first time in Victorian coastal and planning arrangements that sea level was recognised as a planning consideration. The Minister for Planning issued Direction 13 with the General Practice Note, *Managing Coastal Hazards and the Coastal Impacts of Climate Change*. In effect this means that any new proposal for an expansion of coastal urban development ‘must include in the explanatory report how the proposed amendment is consistent with the policies, objectives and strategies for coastal Victoria as outlined in Clause 15.08 of the State Planning Policy Framework’ (Direction 13 under the *Planning & Environment Act 1987* Section 12 (2) (a)). These amendments to the Victorian planning system under the *Victorian Planning and Environment Act 1987*, and associated explanatory documents (appendices 2 and 3) are a significant step forward in implementing Victorian state
coastal planning policy. The language of implementation in the SPPF remains as ‘should’, which is stronger than ‘have regard to’ but is nevertheless still discretionary. These recent policy changes are referred to in the case studies and the implications for ICM in Chapter 6.

There are numerous other related bodies involved in coastal management in Victoria, which results in a complex set of governance arrangements (Wescott 2006a, p.3). During 2005–06, the VCC oversaw the development and release by the Victorian Government of ‘Coastal Spaces’ to ‘improve and clarify strategic planning and tools for managing sustainable coastal development in non-metropolitan coastal areas’ (VCC 2006 p.1). The main purpose of the Coastal Spaces report was to assist local government to implement the Victorian Coastal Strategy. Coastal Spaces states: ‘it is recommended that a strong partnership approach continue with local government and others to progress the implementation of the recommendations contained within this report’ (VCC 2006, p.4). As a member of the steering committee, I gained further insight into the challenges of managing non-metropolitan coastal urban growth. Key issues identified in the report included population change, climate change, coastal regional strategic planning, settlement planning, protecting non-urban areas, managing tourism developments appropriately and regional partnerships. The recommendations of the Coastal Spaces report were adopted by the Victorian Government during 2006 and are summarised below in Table 2.6.

Table 2.6 Coastal Spaces recommendations

<table>
<thead>
<tr>
<th></th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Reaffirm the government’s commitment to direct urban development to existing settlements. Continue to promote a network of regional and local settlements. New settlements on the coast should only be considered if genuine need is identified through a strategic assessment consistent with the Victorian Coastal Strategy.</td>
</tr>
<tr>
<td>R2</td>
<td>Establish settlement boundaries implemented through planning schemes.</td>
</tr>
<tr>
<td>R3</td>
<td>Protect non-urban coastal landscapes by implementing the Coastal Spaces Landscape Assessment Study applying the new rural zones.</td>
</tr>
<tr>
<td>R4</td>
<td>Target priority for infrastructure and innovative solutions in environmental hotspots where the provisions for potable water and reticulated sewage services are not present.</td>
</tr>
<tr>
<td>R5</td>
<td>Encourage tourism investment and products that are sensitive to coastal settings and meet regional needs. Tourism proposals outside settlements must be of high quality, well designed and sited, add value to the coastal experience and be distinguishable from residential proposals.</td>
</tr>
<tr>
<td>R6</td>
<td>Establish clear planning policy that discourages disturbance of coastal acid sulfate soils.</td>
</tr>
<tr>
<td>R7</td>
<td>Establish a more comprehensive approach to asset management on public land through an effective level of service framework.</td>
</tr>
<tr>
<td>R8</td>
<td>Promote ongoing regional coordination and communication mechanisms to maximise knowledge transfer and practice around coastal change management and planning.</td>
</tr>
</tbody>
</table>

(Source: VCC 2006, Coastal Spaces report, Victorian Coastal Council)

The VCS 2008, Melbourne 2030 (which provides the planning framework for metropolitan Melbourne) and Coastal Spaces, form the core policy framework for coastal planning in Victoria. The Victorian Government’s Our Environment Our Future Sustainability Action
Statement 2006 is an overarching environmental statement that has three key directions: maintaining and restoring our natural assets, using our resources more efficiently and reducing our everyday environmental impacts (DSE, 2006). *Our Environment Our Future* reinforces the *Coastal Spaces* directions, with one of its core objectives being ‘healthy marine and coastal systems’. *Our Environment Our Future* also places significant emphasis on coastal protection, stating that ‘this requires strong partnerships and understanding between all levels of government, the community, major users, water authorities, Catchment Management Authorities and private investors’ (DSE 2006, p.11).

Coastal planning in Victoria has an extensive history of engagement by the Victorian Government (VCC 2009). In the last decade, a specific *Coastal Management Act 1995* has been proclaimed, three successive state coastal strategies adopted (1997, 2002, 2008), with supporting implementation measures including *Coastal Spaces*, the *Great Ocean Road Strategy* and a range of coastal action plans and management plans prepared under the *Coastal Management Act 1995* (see Appendix 2). In this respect there is a clear regulatory and policy framework for coastal planning in Victoria encompassing the federal government’s coastal policy framework of a ‘catchment–coast–ocean continuum’ and an ‘integrated approach’. In reviewing the *Coastal Management Act 1995* after 10 years of operation, Wescott (2006a, p2) identified the following emerging issues:

i. There needs to be greater emphasis on Victoria’s marine environment

ii. There needs to be greater integration of the Victorian Coastal Strategy into the planning of private coastal land in Victoria

iii. Coastal action plans have evolved considerably as a planning tool since the inception of the Act but are yet to be used to their full potential;

iv. Above all, the funding of coastal planning and management in general, and the Coastal Council in particular, is pitifully inadequate for such an important region and must be substantially increased immediately.

The three case studies in Victoria, discussed in chapters 3, 4 and 5, will examine some of these issues further and whether the current governance arrangements for land use planning on the Victorian coast can deliver sustainable development. The coastal challenges identified in the *Coastal Spaces* report include climate change, urban growth and capacity building. These three dimensions are also explored in greater depth in Chapter 6, which seeks to outline a more sustainable approach to coastal planning.
2.4.2 Australian coastal urbanisation

The Australian coast has experienced significant urban growth changing both the spatial demographic and physical environment. The 2006 State of the Environment report (DEH 2006) estimates that over eighty-six per cent of the Australian population lives on the Australian coast and predicts continued internal migration 2001–2011, as shown in Map 2.1. As indicated, the significant trend is population growth on the east coast between Sydney and Brisbane, the urban periphery of Melbourne and south of Perth in Western Australia.

Map 2.1 Coastal urbanisation in Australia


The migration of population to the coast has been coined ‘sea change’ and has been the subject of academic and policy discussion (Salt 2001, Burnley & Murphy 2004, Hugo 2004, Smith & Doherty 2006, Gurran et al. 2007, Gurran et al. 2008). A major analysis of this trend found by Burnley & Murphy (2004) indicates:

The movement of Australians from metropolitan cities to non-metropolitan parts of the country has been the focus by social scientists since the mid 1970s. Around then, for the first time in the 20th century, the demographic dominance of the large cities appeared to be on the wane and country areas seemed to be on the verge of a demographic and economic renaissance. We refer to this as a ‘sea change’ (Burnley & Murphy 2004, p.ix).

It should be pointed out that Burnley and Murphy (2004, p.3) use this term in a ‘metaphorical
sense to connote people making a fundamental change to their lifestyles’, i.e. not just to coastal areas. They emphasise that ‘although the population turnaround has significant numbers of people and extensive area, it has been spatially confined in Australia… most notably to the coastal zone of south eastern Australia, peri metropolitan areas, and smaller localities in coastal South and Western Australia, and certain inland rural districts of high amenity’ (Burnley & Murphy 2004, p.15). This is consistent with the trends depicted in Map 2.1 above from the State of the Environment Report 2006. Importantly Burnley and Murphy emphasise that migration to the coastal environment is from both metropolitan and non-metropolitan areas.

Smith & Doherty (2006) in a background paper for the national State of Environment Report 2006 further explore the sea change concept by discussing the ‘pressures’ on the coast — population growth, tourism, climate change and variability, governance arrangements. In particular, Smith and Doherty (2006, p.10) suggest that the suburbanisation of the coast ‘creates two forms of pressures’ being firstly a ‘direct’ pressure on the natural environment as a result of coastal development and secondly an ‘ongoing pressure’ from the continuing management of urban growth such as sewage disposal’. Local governments on the coast have responded to these pressures by coming together and establishing the National Sea Change Taskforce, which commenced during 2004 and comprises sixty-eight local coastal councils representing more than four million coastal residents (National Sea Change Taskforce 2009). The taskforce is the culmination of a groundswell of concern by local governments who voluntarily came together to discuss issues of coastal urban growth and provide a voice to government for funds and policy actions to alleviate the pressures of rapid urban growth. The taskforce has made a significant national contribution in undertaking research, hosting public forums on coastal planning issues and influencing national policy development (National Sea Change Taskforce 2009). In particular, the taskforce has highlighted the financial pressures of providing the infrastructure and services in rapidly developing coastal areas. Gurran et al.’s (2005) report for the taskforce contains an analysis of the sea change phenomenon, building on the earlier research by Burnley and Murphy (2004) and Smith and Doherty (2006). Gurran et al (2005, p.2) specifically focus on the urban growth of non-metropolitan coastal settlements ‘growing at a fast rate equivalent to or higher than that of metropolitan areas’.

Two important findings on the socio-economic characteristics are that coastal communities in non-metropolitan areas have ‘the highest proportion of low-income households’ (17.3% compared to 13.9% in Australia overall), the ‘highest proportion of families receiving income support benefits’ (8% compared to 5.9% in Australia) and coastal regions have the ‘highest
median age’ (38 years compared to 35 for Australia) (Gurran et al. 2005 p.3, Hugo 2004).

Their report develops a typology of coastal settlements and their planning challenges:

i. Coastal commuters — suburbanised satellite communities in peri metropolitan locations;

ii. Coastal getaways — small to medium coastal towns within 3 hours drive of a capital city

iii. Coastal cities — substantial urban conurbations beyond the State capitals

iv. Coastal lifestyle destinations — predominantly tourism and leisure communities and

v. Coastal hamlets — small, remote coastal communities often surrounded by protected natural areas (Gurran et al. 2005, p.3).

This typology of five categories provides more detailed insight into the dynamics of coastal communities, particularly the demographics and planning challenges. For example, while overall there is an aging coastal population, the coastal commuters are in fact a younger population than other coastal communities and Australia overall (Gurran et al. 2005, p.4). These areas also ‘experienced more than double the national rate of growth between 1996–2001’ (Gurran et al. 2005, p.3). In contrast, the report also indicates that coastal lifestyle destinations have significantly higher median ages and higher unemployment than Australia overall. These significant differences between categories suggest the need for more regional and local planning responses to particular social and economic circumstances. The main point is that coastal planning is much more than dealing with environmental impact and that social and economic considerations are integral to any urban planning response. The implication for ICM is that there can be significant local differences in the drivers of change that need to be considered in any approach to coastal planning and management.

The subsequent National Sea Change Taskforce report (Gurran et al. 2006) emphasises the need for a more collaborative approach to coastal planning in Australia, with greater support for local planning initiatives. The best-practice examples (Mornington Peninsula Sustainability Framework, Surf Coast Planning Scheme) are significant one-off initiatives occurring at the local and state level but there is little collaboration between these. A more regional approach to some of the challenges facing coastal communities is recommended. There is also some attention given to incorporating the Indigenous interests into coastal planning, an essential ingredient to any approach for more sustainable coastal planning (National Native Title Tribunal Research Unit 2001). An example is the use of Indigenous
land use agreements as exemplified by Arkawal in Byron Shire (Gurran et al. 2006, p.iii). In particular, the report concludes that there is a need for a supportive national policy framework to support best practice initiatives at the regional and local levels (Gurran et al. 2006, p.61). This need for a more national approach is confirmed in the third Gurran report (Gurran et al. 2008), discussed below in more detail under climate change in Section 2.4.3.

In relation to Victoria, coastal urbanisation has largely been close to metropolitan Melbourne—the City of Geelong region and the shires of Bass and Surf Coast. The Victorian State of the Environment report 2008 gives significant emphasis to the impact of urban growth on the Victorian coastal environment, and states that the coastal population growth rate of almost 1.4% is above the state average and has culminated in the 2000 km long coastline being 16.5% urbanised (CES 2008b, p.45). In addition, approximately ‘nine of out ten Victorians visit the coast every year’ (VCC 2008, p.11). The Victorian coastal population has grown from 883,698 in 1996 to 1,017,654 in 2006 and is projected to climb to 1,109,889 by 2016. The net change between 1996 and 2006 was 15.16 per cent compared to 12.46 per cent for Victoria overall. The coastal share of total population for Victoria grew from 19.38 per cent in 1996 to 19.84 per cent in 2006 and is expected increase to 19.91 per cent in 2016 (VCC 2008, p.15). The Victorian coast is therefore much loved with all the impacts that it brings. How this population increase manifests itself in urban growth is of particular interest to this investigation. An illustration of the pattern of coastal settlement and peak population estimates in Victoria is provided in Map 2.2.

Given the rate of urban growth and the visitations shown above, it is important to appreciate that the Victorian coastline is relatively unique in that 96 per cent of the coastline is in public ownership. This is of considerable value in protecting the immediate coastal environment from the impacts of urban growth (CES 2008b, VCC 2008). This will be discussed further in the Victorian case studies in chapters 3, 4 and 5. However, the scientific assessment indicates that this is not sufficient. The Victorian Commissioner for Environmental Sustainability makes seven recommendations in relation to coastal modification including to: ‘develop strong and consistent indicators of coastal urbanisation to measure the impact of coastal development pressures on the coastal and marine environment’ and to ‘strengthen strategic and statutory tools for managing urban growth on the coast’ (CES 2008b, p.46). This signals an immediate need for improved data on the impacts of coastal urbanisation and the tools to respond to the environmental impacts on the coast. These issues are discussed in Chapter 6.
Coastal urbanisation has been, is and will continue to be a major pressure on the Australian coastal environment. While, compared to other nations, the coastal area that is urbanised is relatively small, the rate and nature of urban growth is presenting significant challenges to policy makers and the coastal communities. All forecasts as shown above suggest that this trend will continue. Consideration of the urban planning challenges this presents will be further explored in the case studies and Chapter 6.

2.4.3 Australian planning for climate change adaptation

The CSIRO and the Australian Department of Climate Change have further interpreted the IPCC projections for climate change (DCC 2009a). In terms of the coastal environment, the principal impacts identified include sea level rise, increases in sea surface temperature, altered rainfall and run-off patterns, altered wave climate and altered frequency of extreme weather events (DCC 2009a). The IPCC projections for sea level rise and a focus of this thesis is one of the first adaptive planning measures being incorporated into land use planning regulations in Australia. The VCS 2008 has included a sea level rise of not less than 0.8 metres to be reviewed as scientific evidence develops (Clause 15.08-2 Managing coastal hazards and the coastal impacts of climate change). The NSW Government has released draft guidelines of planning for 0.4 metres rise by 2050 and 0.9 metres by 2100 (NSW Government 2009). The
Queensland Government has released new draft planning guidelines for coastal development and coastal inundation (Queensland Government 2009). The IPCC 2007 projections for sea level rise are continually being reviewed, with the scientific evidence in Australia suggesting that the estimates are possibly conservative (Steffen 2009).

Urban planning for climate change in Australia is also at a preliminary stage. There is recognition at the national and state levels that climate change is occurring and the main priority in recent years has been on mitigation measures to reduce the level of carbon emissions. In relation to climate change, the Rudd federal government established the Department of Climate Change in November 2007, with a commitment to undertake both climate change mitigation and adaptation measures. There are ‘three pillars’ to the Australian Government’s approach to climate change: reduce greenhouse gas pollution in Australia in the short and long term; work with the international community to develop a global response that is effective and fair; and prepare for the climate change that we cannot avoid. The key elements of the mitigation plan are a carbon pollution reduction scheme, a national mandatory renewable energy target of twenty per cent of Australia’s electricity supply to come from renewable energy by 2020 and a range of energy efficiency measures. More generally, planning for more extreme weather events and the connection between emergency management and land use planning is also receiving the attention of academics (Handmer & Haynes 2008) and policy makers, the most recent being the Royal Commission into the February 2009 Victorian bushfires (2009 Victorian Bushfires Royal Commission 2009).

The key elements of the Australian Government’s approach to climate change adaptation are the establishment of the National Climate Change Adaptation Research Facility (NCCARF) and federally funded programs on local adaptation pathways, integrated assessment of human settlements and coastal vulnerability (DCC 2009c). All of these programs are relevant to urban and regional planning, the current and future design of Australian settlements and infrastructure, including coastal development. A significant underlying issue is the connection or not between land use planning on the one hand and climate change responses on the other. How we incorporate climate change adaptation into land use planning has received little attention at the national, state or regional levels. Presently, none of the metropolitan strategies for the Australian capital cities specifically deal with the impacts of climate change. It is hoped that the recent South East Queensland regional plan draft policy for climate change is the beginning of a necessary change in this respect (Queensland Government 2009).
Three relevant DCC coastal adaptation studies (WPGA 2008, Clarence City Council 2008, SCCG 2009) have highlighted the cumulative impacts and risks associated with projected sea level rise and storm surge and possible pathways forward for local urban planning. The systems approach developed in the third report is based primarily on the research undertaken by the CSIRO Climate Change Adaptation Flagship with the Sydney Coastal Councils Group (SCCG) and the University of the Sunshine Coast. It focuses on ‘communities, planning and infrastructure’ (Smith et al. 2008a). The research includes nine key findings ranging from local government and mitigation to opportunities for local adaptation. One of the most relevant findings for this thesis is that ‘key barriers to climate change adaptation propagate from the State and Federal policy environment in which Local government operates’ (Smith et al. 2008a, p.2). The research found that the reason for this is that federal policy instruments are ‘static’ in nature and not conducive to responding to the dynamic and developing risks inherent in climate change. The other key finding is that ‘local governments are still coming to terms with progress towards climate adaptation’, confirming that climate adaptation strategies are at an early stage in Australia (Smith et al. 2008a, p.1). The research identified six theme ‘streams’ as a basis for climate change adaptation: ‘know your enemy, plan for change, get smart, act, watch and learn, put the house in order and money talks’ (Smith et al. 2008a, p.99). This significant research led by Professor Tim Smith for the fifteen local councils in the Sydney coastal region, based on a systems approach to understanding local adaptive capacity, received the Australian Eureka 2009 Award for Innovative Solutions to Climate Change. The regional research projects collectively are building up an importance knowledge base for planning for coastal climate change with possible lessons more widely for larger urban settlements.

At the national level, National Climate Change Adaptation Research Facility (NCCARF) is coordinating the research program into climate change adaptation (NCCARF 2009). The facility has designated eight research themes: human health; terrestrial biodiversity; marine biodiversity and resources; water resources and freshwater biodiversity; settlements and infrastructure; social, economic and institutional dimensions; emergency management; and primary industries. While it could be argued that all themes affect the coastal environment, the most relevant three are settlements and infrastructure, social, economic and institutional dimensions and marine biodiversity. Each theme is supported by a national research network underpinned by a national research plan to be signed by the federal Minister for Climate Change. The initiatives by the Australian Department of Climate Change are providing initial research and understanding into the projected impacts of climate change on the Australia
coastal environment. Much of the research is on ‘vulnerability’ and regional assessments of impact (e.g. Western Port, Sydney and Gippsland). However, there is only the beginning of an understanding on how this may interact with the Australian land use planning system.

Following a process of stakeholder consultation during 2009, a draft national research plan has been released (Thom et al. 2009). In Australia, there is no national approach to urban planning, no national urban spatial plan for settlement planning and certainly nothing akin to the Netherlands climate change adaptation program (Netherlands Government 2007). In contrast at the international level, there is a significant body of practice and research that has developed over the last decade. Planning for climate change principles have been developed for the United Kingdom (Department of Communities and Local Government 2007), a white paper published by the European Commission outlining a European framework for climate change adaptation (European Union 2009) and a national approach to planning for adaptation by the Canadian Government (Lemmen et al. 2008). These guidelines/reports recognise the importance of linking urban planning and climate change if there is to be any significant response on the ground to climate change and creating more resilient cities. Similarly there is substantial activity occurring at the local level, particularly by city councils. The London Climate Change Adaptation Plan, the New York City Plan and New York Panel for Climate Change and the Chicago Climate Action Plan are examples where urban planning reform is achieving change. By reform, this means establishing an urban planning system that does not impede but facilitates the building or rebuilding of more resilient cities.

Research into the spatial dimension of climate change is only commencing in Australia and will be a very important contribution to planning for coastal settlements and infrastructure. Urban planning and climate change will involve a range of actions including innovation in plans, processes and projects including green infrastructure, smart solutions for water sensitive and energy efficient designs and sustainable urban transport. A number of these ideas are expanded on by Newman et al. (2009, p.118), who outline a framework of GODS, PODS and TODS — green-oriented developments, pedestrian-oriented development and transit-oriented development. Many of these ideas and proposals for urban planning and climate change apply to coastal urban settlements as well as capital cities. Gurran et al. (2008) make nine recommendations to facilitate planning for climate change in coastal communities in Australia. The recommendations include practical actions at the state and local level involving urban policy and regulatory review, assessment of climate change vulnerability, carbon impact of land use or development forms, consideration of equity issues, and
mechanisms for collaboration, particularly at the neighbourhood level. A significant recommendation (no. 9) is that ‘an intergovernmental agreement involving all levels of government be developed to clearly state the commitments and responsibilities of Federal, State and Local Government in planning for climate change’. An intellectual contribution of this thesis will be to develop some principles that could inform such an agreement. Some formative ideas were proposed by (Norman 2009a) for the purposes of obtaining feedback in the process of this research. A more refined set of principles are proposed in Chapter 6 drawing on the discussion in this chapter, wider research and the case studies in chapters 3, 4 and 5.

2.4.4 Summary

Coastal planning in Australia has developed into a complex set of governance arrangements involving all levels of government. The twin pressures of urban growth and the projected impacts of climate change are testing this system in a way that has not been previously experienced. At the national level, the EPBC Act 1999 provides for area-specific regional assessments including major coastal urban growth. More recently, the development of a national policy framework (Natural Resources Management Ministerial Council 2006) represents the beginning of a recognition by the Australian Government that there is a national interest in planning for these twin pressures. However, the policy statement is deficient as it fails to address climate change adaptation plans for managing rapid urban growth, to include a risk management plan, particularly where significant urban development or key installations are located in low-lying areas, and to recommend a set of agreed (COAG) principles that specify the responsibilities of federal, state and local government (Norman 2008a, p.6).

Planning for urban growth in Australia remains a state and local government responsibility with eight different land use planning systems (one for each State and Territory) providing regulation of land use and development. Planning for coastal climate change adaptation is only commencing with place-based research investigations and the development of a national research agenda. The connection between planning for coastal urbanisation at the local level and planning for the projected impacts of climate change remains weak and requires considerable policy and research attention in the future. This is partly explained by different planning and management arrangements for public and private lands, different disciplinary approaches to urban planning and natural resource management, complicated and to a
significant extent reinforced by intergovernmental arrangements. For example, the Australian Government has separate departments dealing with resource management, climate change and urban settlement. This is often replicated at the state level. In the absence of a national coastal planning policy and a national urban policy that embraces all these dimensions, it is suggested there remains an inadequate national policy framework and consequent governance arrangements to deliver integrated coastal management in Australia. Alternative responses to this major policy dilemma are discussed in Chapter 6.

The research by leading Australian academics discussed above and most recently the National Sea Change Task force emphasise that coastal planning is much more than a resource management exercise in environmental protection. The social and economic dimensions of coastal urban growth and the equity considerations and economic impact of climate change require a much more comprehensive response than integrated coastal management has delivered to date. Understanding these broader social, cultural and economic influences on the form and shape of urban development will be critical in developing adaptive responses to climate change (Gleeson 2008). The recent 2009 experience in Australia with bushfires, floods and heat stress also indicates a much closer relationship between emergency management and urban planning is required (Handmer & Haynes 2008, Norman 2009a). The Australian coast is no exception. All these factors suggest that a much more comprehensive and coordinated response to the twin pressures of coastal urbanization and climate change impact is necessary to provide a more sustainable coastal planning approach.

Integrated coastal management has achieved a more coordinated response for natural resource management through natural resource management programs, catchment and coastal management arrangements for public lands. The next policy challenge in Australia for the coast is the integration of ICM into a more holistic approach to strategic planning of Australian coastal settlements that integrates social, economic and environmental considerations cutting across the traditional jurisdictional boundaries of land tenure, land use and traditional government responsibilities. The following discussion outlines a possible pathway of transition from ICM to more sustainable coastal planning.

2.5 Future challenges for ICM
Integrated coastal management has been the basis for coastal management in Australia since the 1970s. The above has discussed a brief history of ICM, its origin and evolving definition and current global and Australian developments in ICM. It provides the context for the following discussion on the contribution and limitation of ICM as the basis for coastal planning. The contributions of ICM have been manyfold. Firstly, ICM has provided a conceptual framework for a more integrated approach to managing the environmental protection of the coastline. This has created a platform for decades of international discussion and global implementation leading to best-practice models being canvassed by the United Nations Environment Program and the European Union (UNEP 2009a, European Commission 2007). Academic discussion of ICM has continued throughout that period, seeking to further refine the concept of ICM and to address some of the continuing issues of implementation (Allmindinger et al. 2002, Shipman & Stojanovic 2007, NOAA 2006, NOAA 2008, Thom 2008, Gurran et al. 2006). As stated in the beginning of this chapter by Sorensen, ‘the optimism is now guarded because they have found out that ICM is a long swim against the current’ (Sorensen 1997, p.3).

Since Sorensen’s (1997) critique, there has continued to be significant implementation of ICM throughout Europe, the USA and now the Asia-Pacific, funded by UN programs (Smith et al. 2006, Kay & Alder 2005). At the same time there has been a growing disquiet voiced in the academic literature about its limitations. The increasing pressures of urbanisation and the projected impacts of climate change have accentuated the limitations (Gurran et al. 2007). Raphael Billé (2008, p.1) argues that ICM implementation is impeded due to ‘deep rooted illusions — the illusion that round table discussions can solve any problem, the coastal manager myth, the community illusion and the positivist illusion’. Similarly, O’Riordan et al. (2008, p.1) conclude that ‘there are no clear governance arrangements to drive the development of sustainable coasts for the next generation. New forms of community engagement, plus fresh approaches to governing institutions, will be necessary before sound progress is made’. These concerns about inadequate forms of community engagement place enormous expectations on ICM to solve all coastal problems. The continued ineffectiveness of coastal governance arrangements is reiterated by a number of authors (Shipman & Stojanovic 2007, NOAA 2008, Glavovic 2006). In reviewing recent coastal policy development in South Africa, Glavovic (2006, p.903) provides a pointed insight into the importance of community engagement in coastal planning:
Rather, and perhaps surprisingly, the South African experience suggests that adopting ‘a sustainable development discourse’ offers better prospects for coastal ecosystems than a narrow conservation discourse. Why? Because blood is thicker than water!

The above discussions highlight the need for a much closer connection between the urban and regional planning of settlements and ICM for the coast. One of the key policy responses being advanced to facilitate this is to adopt a more ‘regional’ approach to coastal planning and management, recognising that many of the issues transcend local jurisdictional boundaries including the terrestrial and marine interface (Allmendinger et al. 2002, Thom 2008, Smith et al. 2008a,b, Norman 2009a). This is explored particularly in the Geelong region case study (Chapter 5) and the implications for ICM in Chapter 6. There are significant advantages in achieving better integration of land use planning and coastal management. There are also inherent risks in that the specific focus on the coast may be swallowed up by the wider objectives of urban and regional planning. Achieving a balance between these multi-objectives is a future challenge for ICM.

In reviewing the literature on ICM, one could be forgiven for thinking that there are many problems and few solutions offered. It is argued at this stage that this is not necessarily the case. In fact I suggest that the positive contributions of ICM have been fivefold: it has brought attention to the coastal environment on a global scale; it has provided a policy framework for global national and local organisations over 30 years to implement a more integrated approach to coastal management; it has evolved from the narrow concept of the immediate coastline to a broader more inclusive definition of recognising the catchment–coast–marine continuum; it has provided a platform for funding programs from global organisations and national governments to improve the environmental health of coastal environments; and it has provided a systematic approach to coastal management, encouraging community engagement in the process of decision-making.

While there have been more specific contributions by region, the above broader contributions have made a significant difference in the way that global organisations such as the United Nations and the World Bank and national governments value the coastal environment evidenced by the dedicated coastal funding programs now mainstreamed into government budgets (e.g. Australian Federal Budget 2008–9). These contributions cannot be underestimated in bring attention to the coastal environments both internationally and within Australia. The problem is that while the rhetoric and some dedicated funding programs are
there, the quality of the coastal environment is continuing to decline and therein lies the policy dilemma: the continuing disconnection between the theory of ICM, the practice of ICM and the outcomes for the coastal environment. To begin to understand what possible pathways may advance the implementation of ICM, it is important to understand the perceived limitations of ICM. The following draws on the discussion above, including the academic literature, public policy reviews and state of environment reports. In attempting to crystallise the key limitations of ICM, this is also providing a starting point for investigating the case studies in chapters 3, 4 and 5.

The overriding message in the academic discourse is that key limitations continue with the concept and practice of ICM. While some critiques emphasise governance, others stress community engagement and still others focus on adaptive management processes, it is suggested there are some key themes emerging from both the literature and major public policy reviews that continue to impede the success of ICM:

i. The lack of a long term planning process for coastal protection
ii. The continuing disconnection between national and regional policy and local action
iii. The inability to respond to the environmental impacts of increasing coastal urbanisation
iv. The new challenge of projected climate change requiring better integration of urban and regional planning and integrated coastal management and
v. The lack of political commitment to implement ICM when faced with significant development pressures.

Furthermore it is suggested that within Australia there are three more limitations:

i. Uncoordinated coastal management between the three levels of government and between States and Territories
ii. The absence of effective national policies for coastal protection and urban planning and
iii. The absence of an integrated system for land use planning of public and private lands that focuses on the environmental services of the coastal environment.

The above eight factors will be explored through the case studies to test their validity in contemporary coastal planning practice in the State of Victoria. Following the case studies a possible framework will be put forward in Chapter 6 to respond to these identified
shortcomings of ICM and advance towards more *sustainable coastal planning*, which I suggest could be defined as:

An integrated and adaptive systems approach to coastal planning that leads to long term improved environmental outcomes for the coastal zone. The core elements are integration, adaptation, systems, long-term, outcome-oriented, regional, communities and a broadly defined inclusive coastal zone.

Underpinning this is the notion of sustainability, a concept dating back to the discussions of the World Conference on Environment and Development and its report (WCED 1987). The WCED is best known for its definition of sustainable development, i.e. ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (Commission for the Future 1990, p.87). Dovers (2005, p.8) states that the ‘greatest achievement of the WCED was to push a move in thinking from environment *versus* development, to environment *and* development. While that move is occurring, the process has a long way to go in terms of both understanding and policy change’. The more recent 2008 Victorian Coastal Strategy adopts a more environmental perspective and uses the term ‘sustainable use’ defined as ‘the use of resources in a way and at a rate that does not lead to the long term decline of biological diversity, thereby maintaining their potential to meet the needs and aspirations of present and future generations’ (VCC 2008, p.76). This VCS definition of sustainable use is adopted for the purposes of this thesis for two reasons: firstly the concepts of environmental stewardship and the long term are embedded in the VCS definition and secondly this research is largely a review of coastal planning in Victoria. My definition of sustainable coastal planning is reviewed and discussed in Chapter 6 following the research findings of the three case studies.

Within the ICM and urban planning literature there have been several attempts to define a set of guiding principles for coastal planning and management (Kay & Alder 2005, Shipman & Stojanovic 2007, Duxbury & Dickinson 2007, Gurran *et al.* 2007, NOAA 2008). More recently this has included the challenge of rebuilding following natural disasters (e.g. New Orleans) with implications for planning for climate change (Blakely 2007, Deyle *et al.*2008). At the national level the Australian Government has developed guiding principles, originally within the Australian Intergovernmental Agreement for the Environment 1992 and later in the *National Cooperative Approach To Integrated Coastal Zone Management – Framework And Implementation Plan*. In a critique of these, I suggested some principles for planning for coastal climate change that could be incorporated into an intergovernmental agreement. These include the precautionary principle, the concept of coastal climate buffer zone, coastal
dependent uses, planning for cumulative risk, sustainable regional plans, Indigenous interests, and local capacity building (Norman 2009a). These suggestions are developed further in Chapter 6.

Finally, there are already significant indications of the need for reform in coastal planning and management in Australia. The Australian National Sea Change Taskforce (2006, p.1) has proposed a *Sea Change Sustainability Charter* with guiding principles to ‘develop innovative and best practice strategic planning at regional and local levels; preserve local character and sense of place; provide for the timely provision of resources to meet the needs of high growth communities for infrastructure and services; integrate coastal management and conservation objectives with economic development; support community wellbeing and ensure community ownership and participation in key planning decisions affecting the coast’. The National Sea Change Taskforce (2007, p.4) argues for the Australian Government to take a leadership role on coastal management and suggests a number of measures to improve the implementation of coastal management including a ‘coastal community infrastructure fund’ to help rapidly growing coastal urban centres, climate change risk analysis and adaptation response to improve regional and local understanding of climate change impacts and regional planning for coastal areas including determination of urban footprints.

The above academic and public policy responses are discussed in detail Chapter 6, which sets out a framework for achieving more sustainable coastal planning in Victoria with some lessons for Australia more generally. Any new approach to coastal planning will require an interdisciplinary (possibly transdisciplinary) approach with an understanding of the connections between urban and regional planning, coastal management, climate change, emergency management and the wider socio-economic dynamics of a region. These dimensions together with the limitations of ICM outlined above provide the basis for investigating the three case studies in chapters 3, 4 and 5 with the aim of providing new insights into coastal planning in Australia in Chapter 6.
3 Point Nepean: Case Study 1

3.1 Point Nepean: A coastal headland

3.1.1 Introduction

Point Nepean is located 90 kilometres from Melbourne on the southern point of the Mornington Peninsula, and is a prominent headland of Port Phillip Bay (Figure 3.1). It is bound to seaward by the high water mark where it abuts the Port Phillip Heads Marine Park and in other areas the seaward boundary is the low water mark. It includes the ‘Point Nepean National Park’ (470 ha) and the ‘Point Nepean Quarantine’ site (about 90 ha). The adjacent areas of Police Point (17 ha) owned by the Mornington Peninsula Shire Council (MPSC) and the Quarantine Anchorage Area to seaward are also considered in the wider planning of the area (Map 3.1).

Figure 3.1 Point Nepean

Point Nepean is selected as a case study to explore particularly the question of vertical integration of coastal planning and governance in Victoria. It responds to research question 3: What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change?
The case study involves a prominent coastal headland rich in natural and cultural heritage. It has a history of multiple-ownership by all three levels of government: local, state and national. Importantly it has always remained in public ownership. The case study examines the process of planning and managing this significant coastal headland, particularly over the last decade, and the outcomes for its long-term environmental protection.

Map 3.1 Point Nepean National Park and Point Nepean Quarantine Station

(Source: Parks Victoria 2009d)

The primary purpose of this chapter is to test the theory and practice of ICM in the context of a coastal headland involving multiple jurisdictions. Vertical integration of public policy is one of the key elements of the theory of ICM. This case study provides the opportunity to understand the strengths and weaknesses of this principle of ICM in the coastal planning arrangements of Victoria. The issues of coastal planning and management in a federation come to the fore, as do the mechanisms for resolving inter-jurisdictional tensions. It also provides a lens into the challenges of ‘integration’ within government as distinct from the other case studies in chapters 4 and 5, which explore wider issues of public and private integration. Several other important coastal issues are especially highlighted, including Indigenous and cultural heritage, community engagement and integration with the marine environment.
Chapter 3 is divided into four sections:

i. An introduction that includes a brief history of the area, a description of the coastal environment, the planning process of ‘integrating’ Point Nepean, the current coastal and land use activity and existing coastal governance arrangements

ii. A description and discussion of the coastal planning and management arrangements including the statutory and strategic planning frameworks

iii. An examination of the coastal planning and management issues including community engagement, Indigenous and cultural heritage, integrated public land management and environmental education, as well as the broader impact of urbanisation and climate change

iv. The implications for the theory and practice of ICM for future coastal planning in Victoria with possible lessons more generally for Australia.

3.1.2 The history of Point Nepean

Point Nepean has a very important place in the history of Victoria. Lieutenant John Murray (founder of Port Phillip Bay) named it Point Nepean in 1802 after Sir Evan Nepean, Secretary of the Admiralty (Catrice 1998). The Indigenous people called it ‘Boonatallung meaning kangaroo hide, because its shape resembled a stretched hide’ (Catrice 1998, p.1). This coastal headland to the waters of Port Phillip Bay has a special place in the early development of Victoria. Indigenous history spans much longer over 40,000 years, with the descendants of the original owners still actively contributing to coastal planning. Point Nepean is rich in its Indigenous and cultural heritage and has been described by a Parks Victoria manager as an ‘interesting case study because whole site is basically one big midden’ (Stuart Ord 2007, central coast focus group timed at 1.09 minutes). The heritage values of Point Nepean have been a very important rationale for the creation of a new Point Nepean National Park.

Regarding the early history of the Indigenous population, the Victorian National Parks Association estimates that ‘by 1839, as a result of loss of food supplies, murder and disease has reduced their population to 89. By 1877 they were gone’ (VNPA 2003). Seventeen shellfish midden sites have been listed, and there is one aboriginal historic place registered for Point Nepean. The Australian Heritage Commission (AHC) has recommended the ‘need for greater consultation with the Indigenous community in order to ensure recognition of the full range of Indigenous heritage values’ (VNPA 2003).
European settlement commenced during the 1830s with the combination of grazing and lime extraction. On 3 November 1852, the Ticonderoga ship came through the heads of Port Phillip with 850 passengers, many suffering typhoid, necessitating the search for a quarantine site. Point Nepean soon became the home of a quarantine station during 1852 and commenced its role as a defence headland in the 1880s and 1890s in response to a perceived threat by the Russians (VNPA 2003). From early European settlement, there are four existing AHC historic sites including two limekilns, one limestone cottage (Sullivan’s cottage) and the quarantine anchorage. The original cemetery site as abandoned in 1852 is located in the area designated as surplus defence land. This cemetery is covered by the Commonwealth Aboriginal Relics Preservation Act 1972.

Point Nepean has played a significant ‘defence’ role. From the 1860s to the 1880s, there was progressive development of fortifications and, in 1909, the federal government assumed control of the quarantine station. There was a Crown Grant to the Commonwealth of Point Nepean in March 1901 by the Victorian Lieutenant Governor sealed on 15 December 1931 (compensation 69,908 pounds) (Bailey 2004). The headland was home to an Officer Cadet School (1951), active during the Vietnam war (1960s), and closed for training purposes in 1984 when activities were transferred to Duntroon in Canberra. From 1985 to 1998, the site became the home of the Army School of Health. Finally, during 1999 it housed Kosovar refugees (VNPA 2003). It clearly played a very important role in the activities of the federal Department of Defence and the Commonwealth for over 100 years.

During 1988 and as part of the Australian bicentennial celebrations, the Victorian Government negotiated the transfer of 215 ha from the federal government for the creation of the Mornington Peninsula National Park. This provided the first public access to the area and the beginning of a long process of consolidating parcels of separately owned public land into an integrated national park taking over 20 years. The remaining 300-odd hectares stayed in the hands of the Department of Defence, eventually transferring to the Victorian Government in June 2009 (Victorian Government 2009). The area ‘Police Point’ was transferred to the MPSC in 2004 for a local community park. The process of integrating Point Nepean is discussed in Section 3.1.4.

3.1.3 The coastal environment
Point Nepean is part of the Mornington Peninsula and Westernport Biosphere Reserve designated under the United Nations Educational, Scientific and Cultural Organisation (UNESCO) described in Figure 3.2. It is one of twelve in Australia and the only urban biosphere in Australia. UNESCO defines biosphere reserves as ‘sites recognized under UNESCO's Man and the Biosphere Programme, which innovate and demonstrate approaches to conservation and sustainable development’ (UNESCO 2009a). While the urban biosphere provides an important environmental context for the management of Point Nepean it is a new concept for the community to understand. As remarked in the central coast focus group, ‘The biosphere which has a fairly simple ideal but it’s just not expressed or understood that way and therefore the community gets very confused’ (Neil Beddoe 2007, central coast focus group timed at 14.14 minutes). This raises the importance of communicating effectively in environmental management.

**Figure 3.2  Mornington and Western Port Biosphere Reserve**

The Biosphere Reserve includes the whole of Mornington Peninsula Shire and parts of the City of Frankston and coastal areas of the municipalities of Casey Cardinia and Bass Coast including Phillip and French islands. Western Port, which is also a Ramsar site, consists of a coastal embayment incorporating vast relatively undisturbed mudflats with salt marsh vegetation. It is also considered as an internationally important feeding and roosting area for numerous species of summering waders many of which are listed under the bilateral Migratory Birds Agreements (with Japan and China).

Source: UNESCO Biosphere Reserve Information Australia: Mornington Peninsula and Western Port (UNESCO 2009b)

The Mornington Peninsula region surrounding Point Nepean is of mixed use comprising urban development, recreation and tourism, agricultural, bushland and conservation environments. It is a major tourism destination in Victoria, particularly for its beaches and vineyards. All of these activities bring pressures to the coastal environment. The two major bays in Victoria — Port Phillip and Western Port, both with their own unique marine environments — flank the Mornington Peninsula. The two bays also contain Victoria’s main shipping lanes and ports and, as such, centres for trade and commerce. The environmental values of the two bays have been recognised by the classification as a UNESCO biosphere (UNESCO 2009b), the designation of an internationally significant Ramsar wetland (Western Port) and the more recent designation of specific marine parks (Port Phillip Marine National Park, Mushroom Reef Marine Sanctuary, Yaringa Marine Park) under the National Parks (Marine National Parks and Marine Sanctuaries) Act 2002. Therefore, while the focus of this case study is on Point Nepean, a unique and diverse physical environment surrounds the area experiencing the pressures of urbanisation of the Mornington Peninsula (MPSC 2009) and the projected impacts of climate change on this region (WPGA 2009).
The special characteristic of Point Nepean is its mix of natural and cultural heritage. The environmental qualities of Point Nepean have been carefully documented during the process of developing the new national park. The details are to be found in the primary document, the Point Nepean National Park and Point Nepean Quarantine Station Management Plan 2009. The history of Point Nepean has meant that much of the natural environment has been altered. As a consequence, much of the attention by management authorities is on restoring the environmental health of the area for the national park.

The key natural features of Point Nepean include the beaches, the coastline and coastal habitats, nationally significant flora and fauna and Indigenous and cultural heritage. These have been recognised formally at a state, national and international level. The Point Nepean management plan details these attributes. Drawing from the evidence presented in the management plan, the key environmental qualities include nationally listed fauna species, coastal bird populations of state significance (Hooded Plover, Shy Albatross), the largest remnant area of Coastal Moonah woodland, state geomorphologic significance with dune cliffs, shore platforms and rock stacks, regionally significant animal species (Long-nosed Bandicoot, Agile Antechinus, Southern Forest Bat, Southern Grass Skink, and Blotched Blue Tongue Lizard), a breeding area for the White-faced Storm-Petrel. Overall it is an important coastal environment for research due to very limited public access over time (Parks Victoria 2009d, p.8).

Point Nepean is recognised to be of traditional interest to the Boonwurrung people (also known as Bunwurrung, Boonwerung, Bunurowrung, Boonoorong and Bunurong). The Point Nepean Aboriginal Archaeological and Cultural Heritage Project 2007 indicates that ‘sites are believed to have a maximum date of 4000 years but are more likely to be 1000-2000 years’ (Parks Victoria 2009d, p.31). The archaeological survey has identified ‘59 shell middens’, ‘one Aboriginal heritage place’ and recommends continuing research and the development of a cultural heritage management plan with the Boonwurrung people (Parks Victoria 2009d, p.31). The Point Nepean management plan 2009 confirms this and commits to preparing the cultural heritage plan with the Boonwurrung Foundation and the Bunurong Land Council Aboriginal Corporation. European heritage is extensive, with evidence of the early pastoral and lime activities. The quarantine station (1852–1978) including 65 heritage listed buildings is substantial in itself let alone the surrounding early Forts of Nepean and South Channel, two lime kilns, a leper station and two cemeteries (Parks Victoria 2009d, p.9, personal communication, Stuart Ord, Parks Victoria).
The above summarises the key environmental and heritage aspects. However, Point Nepean is a special place for Victorians because of the significant roles it has played, not just because of its physical attributes. Many Australians have stayed there, be it as defence personnel, as part of the quarantine process or more recently as refugees. Cheviot Beach was made famous by being the site of the disappearance of Prime Minister Harold Holt, presumed drowned in 1967. This cultural history is a critical component to the story of Point Nepean and will form part of an ongoing education program developed with the national park.

3.1.4 Planning the ‘integration’ of Point Nepean

The following outlines a protracted and difficult process spanning twenty-one years, all three levels of government and local community interest in determining the future planning and management of this coastal headland. It raises significant questions on coastal governance, community engagement and integrated management and coastal planning, which are discussed later (Norman 2004). While there is some detail in the description of the process, it is purposefully provided in this case study to gain an insight into what can happen under the current coastal planning and management arrangements in Victoria.

During 1999, the federal government announced that Point Nepean was no longer required for defence purposes and regarded as surplus to requirements. The Defence Department proposed to transfer 205 hectares to the state level, transfer 10 to 20 hectares to the Mornington Peninsula Shire Council and offer for sale 90 hectares with the Victorian Government given the first option for an unconditional sale. As part of the asset disposal process, the Defence Department sponsored the preparation of a ‘community master plan’ for the site as part of its community consultation. The defined purpose of the community master plan (CMP) was to ‘provide a framework for future land use based on the inputs of a range of specialist evaluations of the site’s physical, cultural and environmental conditions, in addition to the input of key stakeholders’ (Parsons Brinckerhoff 2002 p.b). The Defence Department also established a 28 member community reference group (CRG) made up from a range of community groups. The task of the CRG was to work with the Commonwealth-appointed consultants, Parsons Brinckerhoff, to prepare a ‘master plan’ for the future use of Point Nepean defence land. The draft plan was published in December 2002 and a final version never completed. Will Baillieu OAM, a member of the CRG, stressed the unanimous agreement to the principles of the proposed master plan that was based on two principles: the land should be treated as one entity and it should be retained in public ownership in perpetuity.
Importantly, in the context of Point Nepean, Baillieu raised the concept of ‘responsible stewardship’ for public land and the responsibility of successive governments.

The future vision of the draft CMP was: ‘to create a public park managed as a whole and integrated with the Point Nepean coastal and marine environments to enhance its special sense of place. The future use should recognise the diverse relationships of people with this place over time’ (Parsons Brinckerhoff 2002 p.d). The CMP process was underpinned by several technical studies including landscape and coastal environment, flora and fauna, archaeological and cultural heritage, transport, access and infrastructure, contaminated land and hazardous materials and unexploded ordinances.

A future vision was developed from both the technical studies and community engagement. Apart from the CRG, an expert planning reference group were established (Parsons Brinckerhoff 2002, p.1). The public consultation process was comprehensive and involved nine community meetings, open days, community breakfasts and five weeks of formal consultation (Parsons Brinckerhoff 2002, p.9). The vision included the development of a set of nine ecologically sustainable development principles to provide a framework for any future development of the site:

i. Preserving the existing sense of place including the remoteness and tranquillity
ii. Recognition of previous land uses and indigenous aboriginal cultural heritage
iii. Protection of existing vistas to and from Port Phillip Bay and Bass Strait
iv. Conservation and enhancement of remnant flora, fauna and habitat areas and values
v. Environmentally sensitive provision of public access through the site and along Port Phillip Bay foreshore whilst maintaining the isolation of the scientifically significant Bass Strait coastline
vi. The sustainable reuse of heritage buildings
vii. Environmentally sensitive community-based education, research, tourist, leisure and support facilities
viii. Supplementing the existing limited parkland of Mornington Peninsula
ix. Enhancing the identified themes of tourism on the Mornington Peninsula, the Bellarine Peninsula and of Port Phillip Bay (Parsons Brinckerhoff 2002, p.62).

Importantly, the key elements of the draft CMP included public ownership in perpetuity, the exclusion of residential use, restoration of public access to the site, conservation of significant
habitats, protection of the built heritage with future development sensitive to existing built form and finally any future land use to be within the context of the MPSC’s sustainability framework. The principles articulated for the draft CMP demonstrated a strong understanding of integrated coastal management based on sustainability principles. In an open letter from the CRG to the consultants Parsons Brinckerhoff, the CRG stated: ‘The result is this substantial Draft Community Master Plan, which represents a real collaboration between the CRG and Parsons Brinckerhoff. The CRG now gives in principle endorsement to the Draft Master Plan and commends it for full public comment’ (Parsons Brinckerhoff 2002, p.ii).

From the above, any reasonable expectation would have been that the responsible arms of government, in this case the Department of Defence, would have embraced such a consensus and moved swiftly to facilitate its implementation. However, as often is the case in Australia, when it comes to environment and land use planning, the Australian federal system appears to hinder, not help, the outcome (Crowley 2002). Following the release of the draft community plan on December 2002, the federal government on 12 March 2003 announced that it would proceed with the disposal of its defence holdings at Point Nepean. The proposal comprised the transfer of 205 hectares of bushland to the Victorian Government, the clean-up of unexploded ordinances, the transfer of 10–20 hectares Police Point to the MPSC, and some heritage protection work. The remaining 91.8 hectares was then offered for sale at market value to the Victorian Government. This portion included most heritage buildings and 50 hectares of bushland (VNPA 2003).

This announcement effectively commenced a fierce battle for the rest of 2003 between the state and federal governments, arguably undermining and dividing what had been a united and community committed to protecting Point Nepean. The immediate reaction of the Victorian Government was to reject the offer of sale, arguing that the property was already in public ownership and should simply be transferred to the State of Victoria for incorporation into the existing national park. Precedent had been set with the transfer of coastal lands in Sydney Harbour during the late 1980s as a bicentennial gift to NSW. The response by the Commonwealth to Victoria’s decline of offer was to place 90-odd hectares containing the quarantine station on the open market for sale. Expressions of interest were called for by 2 June 2003. This resulted in twenty-three expressions of interest, including two strong community bids (the Point Nepean Community Trust bid; the VNPA, the National Trust and others bid) and one from the Victorian Government. The campaign to save Point Nepean continued unabated, with numerous letters, growing support and media coverage (The Age
2003). ‘From Cruden Farm at Langwarrin, Dame Elisabeth Murdoch, mother of the News Corp tycoon Rupert Murdoch, said she was "very keen" to see all of it preserved in public ownership’ (Heinrichs 2003, p.1).

On 25 August 2003, the Australian Government announced it would no longer sell the 90-odd hectares but instead seek to lease it, thus maintaining the land in public ownership. At this important point, it appears the community sector began to divide. Environment groups including Environment Victoria hailed this as a win: ‘we see this as a fantastic outcome for Point Nepean’ (Fyfe 2003, p.1). Groups such as the Victorian National Parks Association and others were much more circumspect. The trust that had formed through the development of the draft community plan was beginning to fracture as a result of protracted and seemingly ad hoc decision making. Within two weeks, tender advertisements were in the press with a closing date in four weeks. The year finished not in the way predicted by those involved in the preceding years. Tenders were submitted and a preferred tender selected that included Queensland property developer FKP Limited and four not-for-profit groups (ABC News 2003).

Commencing on 6 December 2003, the Age newspaper revealed the ‘large scale resort plans’ by the Queensland developer that included a request for an 80 year lease. This media campaign continued until 10 December 2003. On 11 December, the Victorian Government responded in kind by announcing significant future planning restrictions on any future development. At this point it could be confidently stated that any ‘trust’ that had developed between community interests and governments had been completely dismantled. The year of 2003 has effectively undermined all the ‘goodwill’ and research into the draft community plan produced only 12 months earlier. The federal system had again shown its weaknesses in achieving environmentally sustainable outcomes for land, in this case coastal lands.

In a seemingly dramatic turnaround but possibly pragmatic move, on 18 December 2003 the Parliamentary Secretary to the Minister for Defence, Fran Bailey MP, announced that the 90 hectare site of defence land at Point Nepean would after all be retained in public ownership for community use (Madden 2003). While several organizations welcomed this announcement, there was continuing discontent with the process. The Point Nepean Community Trust was then established through a trust deed on 10 June 2004 ‘to manage the 90 hectares of Commonwealth land at Point Nepean’. The trust was created through an anonymous $10 million donation and $5 million of federal funding. The Point Nepean
Community Trust was established to oversee the 90 hectares at Point Nepean for a period of five years, after which it could transfer to the Victorian Government. The trust committee, chaired by Simon McKeon, comprised representatives of the Community Reference Group, the Victorian Boonwerung Elders Land Council Aboriginal Corporation, the Australian Maritime College and the Department of Defence. The Victorian Government refused to participate on the Point Nepean Community Trust because it believed that Point Nepean should simply transfer to the State of Victoria now that the lands were surplus to the needs of the Commonwealth. On 31 August 2004, the Minister for the Environment, John Thwaites, stated: ‘The Victorian Government has refused to place a State nominee on the Federal government’s Point Nepean Community Trust because the Trust Deed fails to guarantee the site will be handed to the State…On Point Nepean, the Commonwealth has demonstrated it simply can’t be trusted’ (Thwaites 2004, p.1).

The campaign to save Point Nepean, coordinated by the VNPA, continued until 2009 with the objective of achieving one integrated national park under single ownership of the State of Victoria. ‘The key themes of the continuing Save Point Nepean campaign were: the immediate return of all Commonwealth land at Point Nepean to Victoria; the establishment of an open, public and transparent process to involve the Victorian community in the planning and management of an integrated national park covering all of Point Nepean’ (VPNA 2004a). As expressed by the VNPA at the time:

Trusts are not appropriate to manage national parks, just as it is inappropriate for companies and individuals to do so. National Parks within the Australian state are owned and managed by the State Government on behalf of their communities. This ensures effective and publicly accountable and publicly funded planning and management carried out by professionals, open and transparent community engagement processes, and equity of access and use for the whole community (VNPA 2004a).

The process for five years involved continuing negotiations between the federal Point Nepean Community Trust and the Victorian Point Nepean Advisory Committee. Point Nepean National Park was proclaimed in 2005 covering the lands managed by the State Government, becoming one of Victoria’s newest national parks. Another major public consultation process then followed to cover all public lands in the immediate vicinity, culminating in the Point Nepean Draft Management Plan 2006 and then finally the agreed Point Nepean Management Plan 2009. Finally, on 8 June 2009, a joint federal and state ministerial announcement was made for the historic transfer of land from the Australian Government to the Victorian
Government, finally resulting in one major public owner of the coastal headland together, with the Mornington Peninsula Shire Council controlling the adjacent smaller Police Point. As evidenced from the statements below the action was roundly welcomed as a landmark decision and the culmination of twenty-one years of negotiation:

Mr. Jennings said the handover would give the site world standing as an integrated national park, combining Indigenous, military and natural environment values. Mr. Garrett said the handover to Victoria would ensure the area will be well looked after for generations to come (Lunn 2009, p.7).

The above lengthy and at times complicated process to achieve ‘integrated’ coastal land management lies at the core of the story of Point Nepean. It raised major issues concerning coastal governance, community involvement and highlights the value of Indigenous and cultural heritage. It is also a story of community persistence and is extraordinary in itself in that at all times the lands were in public ownership and the battle was as much within and between governments as it was with the local and wider community. The federal Point Nepean Community Trust has now been dissolved and the future management of Point Nepean National Park is under the public lands manager, Parks Victoria.

3.1.5 Coastal and land use activity

Point Nepean is located at the southern of end the Mornington Peninsula. The region is on the edge of metropolitan Melbourne with the national park just outside the urban growth boundary as defined by the metropolitan plan *Melbourne 2030* (DPCD 2009a). The peninsula is a major residential and recreation playground for the residents of Melbourne. Its natural features of beautiful beaches, coastal habitats, bushland reserves, wineries, orchards and market gardens make it a major destination both locally and internationally.

The Mornington Peninsula Shire Council is the local council and as such responsible for land use activity within the region. The shire is growing at a significant rate with an estimated resident population of 145,356 and an annual growth rate of 1.63 per cent (from 101,000 population in 1991). The shire is 40 to 80 kilometres south of Melbourne and bounded by ‘Frankston City and the City of Casey in the north, Western Port in the east, Bass Strait in the south and Port Phillip Bay in the west’ and ‘contains forty suburbs’. The coastal and land use activity is therefore a mix of rural and urban, with increasing urbanisation. Approximately 30 per cent is urban and seventy per cent rural use (MPSC 2009). The MPSC and local coastal ‘committees of management’ under the Crown Lands (Reserves) Act 1978 manage the coastal
foreshore. The area of the Mornington Peninsula adjacent to Point Nepean is predominantly residential with lower residential densities than the eastern parts of the Peninsula. It is a mix of permanent residents and holiday homes and has experienced a relatively slower rate of growth (MPSC 2009). In terms of integrated coastal management it is important to understand the wider drivers of change in the region to better appreciate the ‘pressures’ on Point Nepean.

The state and local governments over a considerable period of time have provided broader sustainable planning frameworks to minimise environmental impacts to respond to the impacts of increasing urbanisation and tourism/recreation pressure. More specifically, coastal and land use activity in Point Nepean is now determined by the approved Point Nepean Management Plan prepared under S17 (2) (d) of the National Parks Act 1975 (Vic). The Point Nepean National Park and Point Nepean Quarantine Station Management Plan 2009 was prepared by the Point Nepean Community Trust and Parks Victoria. Its specified purpose is ‘to direct all aspects of management of the area until the plan is reviewed’ (Parks Victoria 2009d). The plan is supported by conservation management plans for three historic heritage areas: Point Nepean Forts, South Channel Fort and Point Nepean Quarantine Station (Parks Victoria 2009d, p.99). The key elements of the park include reuse of the quarantine station buildings for environmental management programs, extensive cycling and walking trails, restoration of historic forts, education and research facilities and water and marine related activities. The coastal and land use activity has moved significantly from one of quarantine and defence to one of conservation and environmental protection and in the future is planned for environmental education and tourism. This is a major transformation and has involved a wide range of stakeholders.

3.1.6 Coastal governance arrangements

As discussed in Chapter 2, the primary legislation for coastal governance in Victoria is the Coastal Management Act 1995 (CMA), administered by the Victorian Minister for the Environment and Climate Change. The CMA also provides for the establishment of the Victorian Coastal Council and three regional boards: Gippsland, Central and Western Coastal boards. This coastal governance structure in unique to Victoria and is discussed in Chapter 2. For the purposes of this case study, the Central Coastal Board (CCB) is the most relevant and reports to the Minister for Environment and Climate Change and the Victorian Coastal Council (VCC) on coastal planning and management in the Central coastal region. I was a member of the CCB for five years (2004–9). The central region is currently defined as extending from Breamlea to the west of Queenscliff to Inverloch in the east. In relation to
Point Nepean, the CCB prepared the *Mount Eliza to Point Nepean Coastal Action Plan 2005* (CAP). The VCS 2008 details the coastal governance arrangements for Victoria and lists the myriad of acts (12), regulations (7), policies and strategies (22), plans (6), guidelines (4) and programs (5) (VCC 2008, p.71). Most of these affect the Shire of Mornington Peninsula generally and in many cases more specifically Point Nepean. A more detailed discussion of plans and policies is found in section 3.3 of this chapter. From a governance perspective all these regulations and plans are part of the broader coastal governance arrangements. The coordination and integration of these regulations and plans is critical to an integrated approach to coastal management in terms of effective implementation on the ground.

The present coastal governance arrangements for Point Nepean are a culmination of the process outlined in Section 3.2.5. The creation of the integrated Point Nepean National Park has brought new governance arrangements, with the Victorian Government now responsible for its future environmental protection. Following the transfer of the ninety hectares, Parks Victoria is responsible for the Point Nepean National Park including the quarantine station. The Mornington Peninsula Shire Council is responsible for the adjoining Police Point Reserve for local community use. During June 2009, the Victorian Government introduced the *National Parks Amendment (Point Nepean) Bill 2009* to extend the Point Nepean National Park to include the quarantine station and ‘to make provision for the granting of leases and licences in part of the park’. These new arrangements have resulted in a more integrated approach to coastal planning for this environmentally valuable coastal headland. By providing a management plan under the *National Parks Act 1975* and in accordance with the *Environment Protection and Biodiversity Conservation Act 1999*, agreed to by the federal and state governments and supported by local government, that integrates the requirements of the myriad of plans and policies, it provides in many ways a model of integrated public land management. The merits and otherwise of this outcome are discussed in detail in Section 3.5.

### 3.2 Current coastal planning framework

The planning framework Point Nepean case study is in many ways easier to discuss than the case studies of Gippsland Lakes (Chapter 4) and the Geelong region (Chapter 5). If this thesis had been completed before 30 June 2009, it would have been a complicated discussion. However, as discussed above, a high level of ‘integration’ has now occurred in relation to Point Nepean. As a reminder, this required twenty years of persistence by a range of actors and interests. The following outlines the major strategic plans affecting Point Nepean.
As discussed in Chapter 2, the primary legislation affecting the Victorian coast is the *Coastal Management Act 1995* and the *Planning and Environment Act 1987*. Point Nepean is subject to a wide range of legislation. For the purposes of all three case studies in chapters 3, 4 and 5, the most significant legislation affecting coastal planning and management in Victoria is listed below in Table 3.1.

**Table 3.1  Key planning and coastal management legislation for the Victorian coast**

<table>
<thead>
<tr>
<th>Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment Protection and Biodiversity Act 1999</td>
</tr>
<tr>
<td>Coastal Management Act 1995</td>
</tr>
<tr>
<td>Planning and Environment Act Vic 1987</td>
</tr>
<tr>
<td>Catchment and Land Protection Act 1994</td>
</tr>
<tr>
<td>Environment Protection Act 1970</td>
</tr>
<tr>
<td>Water Act 1989</td>
</tr>
<tr>
<td>Local Government Act 1989</td>
</tr>
<tr>
<td>Australian Heritage Commission Act 1975</td>
</tr>
<tr>
<td>Flora and Fauna Guarantee Act 1988</td>
</tr>
<tr>
<td>State Archaeological and Aboriginal Relics Preservation Act 1972</td>
</tr>
<tr>
<td>Aboriginal and Torres Islanders Heritage Act 1984</td>
</tr>
<tr>
<td>Heritage Act 1995</td>
</tr>
<tr>
<td>National Parks Act 1975</td>
</tr>
<tr>
<td>National Parks (Marine National Parks and Marine Sanctuaries) Act 2002</td>
</tr>
<tr>
<td>Environment Protection Act 1970</td>
</tr>
<tr>
<td>Marine Act 1988</td>
</tr>
<tr>
<td>Port Services Act 1995</td>
</tr>
</tbody>
</table>

In addition to the legislation listed above, the Victorian and the Australian governments in July 2009 signed an agreement under Section 45 of the federal *Environment Protection and Biodiversity Conservation Act 1999* relating to environmental impact assessment July 2009.

The plethora of legislation potentially makes for a complicated coastal management scenario and is indicative of coastal management in Victoria as they apply to the whole coastline. The issue is not so much that there are inherent conflicts between the statutes, but more an issue concerning integration and coordination when applied in the field. In the case of Point Nepean, the management plan has sought to recognise the obligations under the range of legislation and has integrated, where possible, these responsibilities into actions. This is a major step forward and arguably an example of best practice in coastal public land management in Australia, providing a legible framework that interprets the range of statutory responsibilities within a strategic land use management plan.
The State Planning Policy Framework under the *Planning and Environment Act 1987* and the metropolitan plan *Melbourne 2030* provide the broader planning context and define an urban growth boundary close to the park. Point Nepean itself lies outside the urban growth boundary but is affected by the overarching strategic policies on planning and environment management. More relevant are the MPSC’s strategic plans. The MPSC has been engaged in a conversation on sustainability with its community since 2001. During 2004, I facilitated a workshop for the councillors to help define the sustainability challenges facing the Peninsula in the future. Since then the council has conducted a substantial consultation process on a range of issues including climate change and urban growth:

Our ‘Climate Change Conversations’ community engagement program, attended by more than 3,000 people, is an excellent example of how we address global issues with our community so that the actions we take reflect their expectations (MPSC 2009, CEO statement).

The Mornington Peninsula Shire Strategic Plan 2008 is in the process of revision with a new draft plan for 2009–2013 being considered. This draft provides a better indication of the future directions in the region that surrounds and will affect Point Nepean. The ‘principles of sustainability’ are ‘to strive for inter and intra generation equity, enhance economic and social wellbeing, apply the precautionary principle, conserve non renewable resources, maintain and enhance biodiversity and develop community awareness and support’ (MPSC 2009, p.13).

The supporting strategic plans of the MPSC include the Municipal Strategic Statement (MSS), the capital works program, the health and wellbeing plan, the municipal fire prevention strategy, the domestic wastewater plan and the asset management plan. While all these plans could affect Point Nepean, the most relevant two for Point Nepean are the Mornington Peninsula Planning Scheme, which includes the MSS and the capital works program. The MSS in the planning scheme specifically recognises the environmental and cultural significance of Point Nepean (MSS 21.01) and the contribution of the Point Nepean National Park to the region’s open space system (21.06 strategic framework and the peninsula’s settlement pattern). It also includes specific provisions to provide a protective buffer to respond to a key development pressure on Point Nepean National Park, i.e. ‘including consideration of the impact of development on private land on the recreational and conservation values of adjoining reserves, including the Point Nepean National Park’ (21.09) (DPCD 2009b).

The Victorian Coastal Strategy 2008 is the key strategic coastal policy that affects Point
Nepean. As discussed earlier, the VCS 2008 is based on a hierarchy of principles to: ‘provide for the protection of significant environmental values and cultural values, undertake integrated planning and provide clear direction for the future, ensure the sustainable use of natural resources, ensure development on the coast is located within existing modified and resilient environments where the demand for development is evident and the impact can be managed’ (VCC 2008, p.23). The VCS 2008 focuses specifically on three themes: climate change, population and growth, and marine ecological integrity. It contains an actions table for implementation and details the responsible authorities for each action, including Parks Victoria. Importantly and unusually in Australia, the principles and the policies of the VCS 2008 were given statutory recognition in the planning system in a parallel statement by the minister for planning. This gave effect to the principles of the VCS 2008 and also made specific directions in relation to coastal impacts of climate change in a landmark action in coastal planning of Australia. The specific provisions are Amendment VC 52 that updates Clause 15.08 Coastal Areas of the State Planning Policy Framework to reflect the new strategy and Direction No. 13 with the General Practice Note, Managing Coastal Hazards and the Coastal Impacts of Climate Change. In addition to the above, there is a range of strategic plans that also influence Point Nepean including the Mt Eliza to Portsea Coastal Action Plan, the Regional Tourism Action Plan 2009–2012 and the Mornington Peninsula and Westernport Biosphere Project.

Within the above strategic framework, the Point Nepean National Park and Point Nepean Quarantine Station Management Plan is the primary planning document for Point Nepean National Park. The management plan contains ten actions for future land and coastal use:

i. Bring heritage buildings and settings to life through adaptive use and sustainable re-use
ii. Provide a focus on learning and heritage appreciation through innovative and inspiring interpretation and education opportunities to tell the stories of the place
iii. Establish a range of accommodation and associated services to meet the needs of a broad market
iv. Establish multi-disciplinary education and research facilities
v. Adopt a holistic approach to landscape and ecological management through programs that protect cultural settings and threatened species and habitats, build knowledge, manage the use of fire, and restore coastal woodlands and grassland habitats
vi. Work in partnership with the Boonwurrung to protect Indigenous places and objects and reflect Boonwurrung knowledge, interests and aspirations for Point Nepean in all planning and management

vii. Protect, conserve, manage and present historic values, with an emphasis on conserving the fortifications and managing heritage building through re-use

viii. Provide for a mix of recreation, tourism, education, research and community uses, while applying high standards of environmental management

ix. Enhance visitor experiences by improving access, providing quality facilities, establishing tourism and recreational links between attractions and opening new areas

x. Pursue and establish partnerships between the private sector, the community and managers of the land to achieve common goals and foster community participation (Parks Victoria 2009d, p.v).

An extensive action program included in the park management plan supports these actions. The above actions incorporate the key themes raised in Chapter 2 of adaptive use, innovation, multidisciplinary education, Indigenous and cultural heritage, partnerships and community engagement. The ten actions plan also closely resembles the original recommendations by the community reference group, described earlier. It is too early to judge the outcome of the plan as it is only beginning to be implemented. Based on the inclusion of the community based sustainability principles being included in the plan, the coastal planning framework for Point Nepean has moved towards embracing a more sustainable approach to coastal planning.

3.3 Coastal planning and management issues

The development and integration of Point Nepean National Park over the last twenty years raises a number key issues in relation to coastal planning and management. This case study is distinct from the other case studies in chapters 4 and 5 as it is primarily concerned with integrated public land management. As a consequence the issues raised are also partly different. This is legitimate as one of the primary purposes of this thesis is to test the robustness of the theory and practice of ICM in different coastal contexts. However, the wider planning policy context and the location on the edge of metropolitan Melbourne are significant and the impacts need to be considered as part of the coastal management arrangements. Key issues raised in the Point Nepean case study include community engagement, Indigenous and cultural heritage, the urbanisation of Mornington Peninsula, an integrated approach to coastal public land and environmental education. Climate change has
been identified as a key issue for the shire (MPSC 2009) and will also need to be considered more carefully in the future planning of Point Nepean. This was emphasised by the MPSC in its submission to the federal inquiry into the environmental impact of climate change on coastal communities (MPSC 2008). These issues are discussed below and are followed by a discussion of the implications of this case study for the theory and practice of ICM.

3.3.1 Community engagement

Community engagement has been at the core of the strengths and weaknesses in planning for Point Nepean. The planning process outlined in Section 3.1.4 contains many lessons for coastal planning. It was a lengthy and exhausting process for the community and one that challenged the ‘trust’ people had in any planning process. This was not the first time this has occurred with a defence property. A Senate report (2001) referred to a 1996 report ‘A presence for the past’ by the Committee of Review of Commonwealth Owned Heritage Properties, which stated ‘the real owners of these properties are the past, present and future generations of Australians who paid for their construction, and upkeep through the taxation system.’ The report went on to state:

Reference to Commonwealth land being owned by the people of Australia is probably another way of saying that the government or its agencies should not dispose of land for purposes inconsistent with the area in which they are located and against the wishes of the local community and local and state governments. When people dislike or have serious reservations about plans for redevelopment of former Defence properties and their views are neither sought or not treated with due respect, they become resentful and frustrated (6.13) (Senate Foreign Affairs, Defence and Trade References Committee 2001, p.43).

The persistence by the Save Point Nepean campaign coordinated by local leader Kate Baillieu and supported by the Victorian National Parks Association and committed staff of Parks Victoria actively facilitated the outcome against seemingly impossible odds at times. It was only after a sustained media campaign by The Age newspaper, a change of federal government and the re-establishment of collaboration and trust between stakeholders, that any resolution occurred. As the chair of the Central Coastal board Liz Johnstone more generally remarked, ‘the goodwill and the shared objectives really matter’ (Liz Johnstone 2007, central coastal region focus group timed at 54:25 minutes). In other words it could be argued that the outcome for Point Nepean had little to do with process or intergovernmental cooperation but more to do with shared community objectives and goodwill over time that led the governments to move towards a more collaborative and consensual approach. As Kate
Baillieu commented, ‘It has been an appalling process, I can’t understand why we’ve been dragged through this dreadful process at great personal cost to so many people’ (Baillieu, K 2003). In terms of integrated coastal management, this suggests that there is still significant change required to coastal governance processes that facilitate community engagement in a way that positively contributes to more sustainable outcomes.

Overall the issue of community involvement was raised strongly in the central coast focus group from a range of perspectives. Concern was particularly expressed on the nature of consultation and ‘community exhaustion’, i.e. the ‘nature of consultation isn’t necessarily determined by the framework so we still have the question of whether the framework is appropriate’ (Jacky McLeod 2007, central coast focus group timed at 29 minutes). This concern about the nature and kind of community engagement as opposed to the extent of community involvement has implications for ICM and is more fully discussed in Chapter 6.

3.3.2 Indigenous and cultural heritage

The second major issue at Point Nepean is the protection and management of Indigenous and cultural heritage. It was not until the federal government decided that lands were surplus to defence purposes, that a detailed archaeological survey was undertaken (Murphy & Buttrose 2002, Parks Victoria 2009d) discovering the wealth of Indigenous and European heritage. The Point Nepean management plan outlines a range of actions to advance the knowledge, understanding and management of the heritage of Point Nepean. A significant reason behind this was that while lands and building remained in federal jurisdiction, the State of Victoria heritage and planning laws did not apply. It was only when there was commitment in principle to transfer the lands to Victoria that any serious investigation occurred. In other words, if there had been no intention to sell the land, the Indigenous and cultural heritage may have continued undocumented and unprotected. This highlights a continuing and serious issue in relation to coastal management not only in Victoria but also on Commonwealth coastal lands elsewhere within Australia. There is now a commitment in the Point Nepean 2009 management plan 2009 (Parks Victoria 2009d) to prepare a cultural heritage management plan for Point Nepean with the Boonwerung people.

3.3.3 Integrated public land management

The creation of the new Point Nepean National Park has resulted in a substantial improvement towards a more integrated approach to public land management. This is a major step forward
and has facilitated increased vertical integration policies for improved environmental outcomes. However, there are two major issues that are important elements of ICM: firstly horizontal integration of policy across land tenure and the terrestrial–marine interface and, secondly, recognising the important role that state and local governments can play in managing the wider socio-economic pressures. The Point Nepean management plan has only two mentions of the MPSC (ownership of Police Point adjacent to the national park and heritage provisions of the local planning scheme). Similarly, the plan has no mention of the broader influences of land use planning including *Melbourne 2030* and the projected urban growth scenarios for the immediate region. There is much better recognition of the adjacent marine parks and an understanding of an appreciation of the benefits this connection potentially brings the visitor/tourist experience and opportunities for environmental education. The integration of all three aspects — the council controlled private and local public lands/reserves, the national park and the marine environment — is the next challenge for the 2009 Point Nepean management plan. An improved connection between planning for the public and private realms is the other. A possible way forward is shown in the recent United Kingdom Coastal Strategy. This has a focus on ‘regional strategies’ that ‘will have regard to National Policy Statements, Planning Policies and the Marine Policy Statement and will therefore take into account marine planning policies’ (DEFRA 2008, p.15). Experience in NSW, a state that has taken a more regional approach to planning, has been mixed and some have expressed concern that attention has been redirected primarily to urban planning concerns at the expense of a more whole of government approach to coastal planning (Thom 2008). This issue would need to be addressed if a regional approach was taken to achieve a more integration. It maybe that regional ‘coastal’ plans are a possible solution involving local government, connecting urban planning and natural resource management and providing a spatial framework for more integrated and sustainable coastal planning.

3.3.4 Environmental education

The fourth issue that is particular to this case study is the strong emphasis in the 2009 Point Nepean management plan on environmental education. This component was a key outcome of the stakeholder engagement process and the involvement particularly of the local Indigenous people. A whole section of the management plan is devoted to information, interpretation and education. ‘The proposed establishment of the National Centre for Coasts and Climate Change at the Quarantine Station provides a significant opportunity to seek and establish multi-disciplinary educational and research partnerships’ (Parks Victoria 2009d
This commitment for both education and research is a laudable and important objective. However, it highlights the gap that can occur between policy statements and reality. After the joint statement on the creation of the new integrated national park there was a conspicuous absence of any funding commitment to such a coastal centre. Opposition environment spokesperson and local federal Member of Parliament Greg Hunt called for funding the proposed ‘University of Melbourne climate and coasts research centre to go ahead’ (AAP 2009). There remains no funding commitment to this education and research centre. The development of such a centre also raises the question of access and integration with the surrounding community’s education centres including schools and post secondary-education facilities.

The above account discusses the key issues emanating from this case study: community engagement, Indigenous and cultural heritage, integrated public land management and environmental education. The broader issues of urbanisation and climate change are referred to more generally as wider influences on the national park. These issues raise important implications for the theory and practice of integrated coastal management, to which I now turn.

3.4 Implications for the theory and practice of ICM

The coastal environment in Australia is managed by a diversity of actors, including three levels of government, a range of semi-government bodies and a significant voluntary sector. The case of Point Nepean highlights the complexity and risks inherent in the current system of governance. The early planning process of Point Nepean (Section 3.1.4) distinguished itself by concluding with a high level of distrust and uncertainty over the future of a declared heritage coastal headland. In fact a higher level of distrust emerged from a community that initially contributed actively and positively to a process. The reneging on the initial community planning process and subsequent political conflicts added years to the planning process. The long term commitment by community leaders such as Kate and Will Baillieu, former members of the original community reference group and the VNPA, maintained a constant vigil on the process and the accountability of government. In many respects, the case study of Point Nepean highlights that trust is a critical element in any community partnership. Much of the debate around Point Nepean involved protecting the environmental and cultural values of the land and for the community, a ‘sense of place’. It was also concerned with the long term security of control over future development and environmental protection.
The more recent planning process that followed the establishment of the Point Nepean Community Trust and the Victorian Point Nepean Advisory Committee resulted in a more positive effort around common themes. However, there was still a very targeted focus on the ‘site’ with less focus on the connections with surrounding environment. The role of the local council remains unclear in relation to coastal planning and management. This issue was expressed more generally by the MPSC to the federal parliamentary inquiry into climate change and the environmental impacts on coastal communities:

The Shire's experience suggests there is uncertainty with current arrangements and would be supportive of a more clearly defined role for local government going forward in developing and implementing more suitable institutional changes across each level of government (MPSC 2008).

Drawing on the evidence and discussions presented above, it is suggested that the Point Nepean case study has the following implications for the theory and practice of ICM:

i. The critical importance of vertical integration of national, state and local coastal policy and planning to enable an integrated approach to ICM; this was strongly highlighted in section 3.1.4 detailing the ‘process’ of integrated coastal land management and the political and financial costs of inadequate vertical integration of the state and federal government and the delay in finding resolution.

ii. The process of community engagement is fundamental to any process of coastal planning and relies on ‘trust’ and goodwill over time. This is facilitated by the development of common objectives and a commitment over the long term. The early reneging on the original community master plan with Point Nepean community interest effectively added years to the process and created a deep sense of mistrust that may take years to overcome.

iii. The inclusion of Indigenous and cultural heritage is essential to understanding and learning from the coastal environment, providing a key partnership and a relevant basis for environmental education and community capacity building. A significant outcome and contribution of the Point Nepean process has been the formal recognition of Indigenous and cultural heritage in a meaningful way, i.e. agreed to by all parties. As a result, there is an exciting opportunity at Point Nepean for long term environmental education on these important coastal planning and management issues.
iv. Integrated public land is a critical component to ICM but is only part of the challenge that requires a broader understanding of potential impacts of urbanisation, tourism and climate change on the coastal environment. The lesson learned here is very important for the future of ICM. ‘Point Nepean is a classic example and that nearly very closely went to a private owner for private development…is absolutely unique…could have been potentially been lost to the public forever’ (Peter Watkinson 2007, central coastal focus group timed at 54.07 minutes). Concerted community action and leadership enabled the context to be provided for the development of an integrated management plan for the new national park. These issues are not particular to the coast and are just as alive around the urban fringe of metropolitan cities.

v. Environmental education is recognised as a key strategy for increasing knowledge and understanding of ICM but needs to be appropriately funded over the long term to have any lasting effect. Emerging from the protracted and at times fraught process for Point Nepean is a strong understanding of the contribution that a national coastal park on the edge of a metropolis can make to educating the wider community about coastal environmental protection. The proposed coastal and marine centre is evidence of this appreciation, combining research and community education.

vi. Intergovernmental relations can significantly influence (impede or facilitate) sustainable outcomes. New governance mechanisms need to be further explored to facilitate more sustainable coastal planning outcomes. Overall, the Point Nepean case study illustrates the impact of ‘dysfunctional’ intergovernmental relations and highlights some of the continuing gaps in the current practice of ICM. Point Nepean had the benefit of the Save Point Nepean campaign supported by community leaders, former members of the original community reference group, the VNPA and The Age newspaper to lobby for its environmental protection. As stated by the Executive Director of the VNPA, Matt Ruchel, ‘Ever since the land at Point Nepean was divided, the VNPA and other community campaigners have been fighting to have the remaining Commonwealth land transferred to Victoria, and to expand and re-integrate Point Nepean National Park under one owner and one management agency’ (VNPA 2009). It begs the question of what may have eventuated had the coastal site been located in a less resourced and connected area. In other words, it could be argued that the outcome was eventuated despite the ICM system not because of it.
In summary, Point Nepean is one of three case studies selected to test the theory and practice of ICM in Victoria. This case study of a prominent coastal headland has focussed on integrated coastal public lands management, raising particular issues and implications for ICM. It has shown that the consequence of not achieving vertical integration of coastal land policy can be costly and lengthy. It highlights these gaps in ICM and the need to find new ways to engage with the community to find more sustainable coastal planning solutions. As O’Riordan (2009, p.322) states:

I therefore conclude that unless we somehow manage to establish new creative institutional arrangements, fully integrating the public, private and civil sectors, along with new forms of regulation and assessment, participation and scenario-building, I cannot see the most imaginative of contemporary governance meeting the challenge of sustainability.

Chapter 4 addresses another coastal context: the planning and governance of the Gippsland Lakes, involving a different mix of stakeholders and planning frameworks with more lessons for coastal planning.
4. The Gippsland Lakes: Case Study 2

4.1 The Gippsland Lakes- a coastal lakes region

4.1.1 Introduction

The Gippsland Lakes case study examines a coastal lakes system and surrounding coastal environment, as noted in Chapter 1. The area encompasses two major water catchments, seven rivers, three lakes, a fragile coastal edge and a rich marine environment. The environment is predominantly agriculture with increasing pressures on urban nodes from tourism and recreation (Figure 4.1). For the purposes of this thesis the area is defined as that covered by the shires of East Gippsland and Wellington in proximity to the lakes system, including the Ninety Mile Beach (Map 4.1).

Figure 4.1 Lakes Entrance Gippsland

![Lakes Entrance Gippsland](image)

David Tatnall 2009

The primary purpose of Chapter 4 is to examine the theory and practice of ICM in the context of a coastal lakes system involving multiple jurisdictions. It is responding to research question 3: What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change? In this case study a particular focus is on horizontal integration of public policy as one of the key elements of the theory of ICM.
This case study provides the opportunity to understand the strengths and weaknesses of this principle of ICM in the coastal planning arrangements of Victoria. The issues of coastal planning and management come to the fore in exploring the issues that transcend municipal boundaries and the intersection of public and private lands. The lakes system and marine environment are also a critical component of the Gippsland Lakes region. This case study provides a lens into the challenges of ‘integration’ in a region involving six river catchments, two municipalities, catchment and water authorities and multiple land use and coastal activity. Several important coastal issues are especially highlighted, including the projected impacts of coastal climate change, coastal development, the water quality of the lakes, and regional mechanisms for integration. This list is not exhaustive but seeks to cover some of the key issues not covered so extensively in the other case studies (chapters 3 and 5). In this respect it is intended that between the three cases studies a considerable range of issues will have been explored in relation to ICM. Chapter 4 is divided into four sections:

i. An introduction that includes a brief history of the area, a description of the coastal environment, the current coastal and land use activity and existing coastal governance arrangements

ii. A description and discussion of the coastal planning and management arrangements including the statutory and strategic planning frameworks
iii. An examination of the coastal planning and management issues including coastal
climate change, coastal development, water quality of the lakes, and regional
mechanisms for integration
iv. The implications for the theory and practice of ICM for future coastal planning in
Victoria with possible lessons more generally for Australia.

4.1.2 A brief history of the Gippsland Lakes

The Gippsland Lakes region comprises agricultural lands, coastal bushland, major waterways
and urban settlement. The Gippsland Lakes has a long Indigenous history well before
European settlement. The Gippsland Lakes ‘fall within the boundaries of the area occupied by
the Tatungalung clan of the Gunai/Kurnai people’ (Parks Victoria 2009a). Sadly, Indigenous
history in Gippsland is one of massacre, as outlined below:

Gurnia/Kurnai resistance to this piece by piece dispossession, is recorded
during the 1840’s in a number of massed attacks on early squatter camps and
station houses. The squatters in turn mounted particularly bitter retaliatory
campaigns (e.g. the ‘massacres’ of Butchers Creek, Maffra, Boney Point and
Warrigal Creek), said to be retribution for murder of stockmen and others, but
often merely for loss of sheep and cattle (National Native Title Tribunal
Research Unit 2001, p.5).

Perhaps in response to such tragedy, a number of Crown Land Reserves were established
during the 1860s around the Gippsland Lakes, some with Aboriginal Missions, e.g. Lake
Wellington 1863 and Lake Tyers 1860 (National Native Title Tribunal Research Unit 2001,
p5). The Krowathunkoolong Keeping Place has been established in Bairnsdale to recognise
the importance of the Indigenous history of the Gunai/Kurnai people of Gippsland.

A significant change occurred during June 1889 when the artificial entrance to the Gippsland
Lakes opened to enable shipping to enter the coastal lakes system. This was a major public
investment facilitating an increase of coastal and land use activity including increased
opportunities for the fishing industry and tourism. ‘The costs to construct the artificial
entrance, and maintain it and other interior lakes waterways between the years 1870–1925, as
estimated by the findings of the 1927 Royal Commission, had totaled approximately £500,000
(Royal Commission on Victorian Outer Ports 1927, 4)’ (Wheeler 2006, p.9).

The Gippsland Lakes region has been a tourist destination for a century or more. It was
described in the Melbourne press as follows: ‘whether the halt is made at Paynesville,
Metung, Kalimna, Lakes Entrance or Lake Tyers, visitors can hardly fail to be impressed with the attractiveness of the locality which must be very greatly developed as a holiday resort as the years go by’ (*The Age* 1926, p.11). Over the last century, the Gippsland Lakes region has continued to develop as a major tourist destination with a growing permanent residential population in coastal centres. Bairnsdale is the main urban centre with adjacent coastal urban centres of Lakes Entrance, Metung and Paynesville and smaller villages such as Raymond Island. Lakes Entrance is the shipping hub for the Lakes with the smaller settlements of Loch Sport, Seacombe and Seaspray adjoining the lakes system. The area is governed by two shires (Wellington and East Gippsland) and comprises a substantial mix of public and private lands. This brings significant coastal management challenges discussed later in this chapter.

4.1.3 The Coastal environment

It is rich in natural assets, a major commercial fishing centre and a significant tourism resource for Melbourne. The coastal lakes system is experiencing increased pressure on its environment and is showing visible signs of environmental stress. During 1998, an environmental audit of the Gippsland Lakes found that ‘over the years catchment land use has changed with the result that nutrient exports and loads to the Lakes have increased, water quality has deteriorated and other impacts on the aquatic ecosystems of the Lakes has occurred’ (CSIRO 1998, p.i).

The Gippsland Coastal Board Victoria commissioned this investigation, which concluded that if no action were taken, water quality would deteriorate and algal blooms would continue (CSIRO 1998). In response, a major state government funded program was commenced under the management of the Gippsland Lakes and Catchment Taskforce to ‘…protect the ecological health of the Gippsland Lakes by ensuring the adaptive integrated management of both the Lakes and its catchment’ (Gippsland Lakes and Catchment Taskforce 2009). The water quality issues remain and the Gippsland Lakes and Catchment Taskforce is currently reviewing its long term plan of a ‘40% reduction in nutrient entering the Gippsland Lakes by 2022 in order to reduce the frequency and severity of nuisance algal blooms that affect ecosystem values associated with the Lakes’ (Gippsland Lakes and Catchment Taskforce 2008, p.1). The nutrients are mainly from agricultural use and forestry upstream as well as increasing urban development. The Gippsland Lakes have also experienced an increase in nutrients as a result of extreme weather events in recent years, including flood and bushfire. The risk of these events is likely to increase with predicted climate change and consequently place greater pressure on the environmental health of the lakes. The Gippsland Lakes and
Catchment Taskforce is undertaking a review of its long term planning based on a 2008 scoping study into current programs. This is discussed in more detail in Section 4.2.

The Gippsland Lakes region is of high environmental significance and is classified by the National Trust (2009) as a ‘significant regional landscape’. The Gippsland Lakes comprises two large national parks under the *National Parks Act 1975* (Vic.): the Lakes National Park created in 1956 (2390 ha) and the Gippsland Lakes Coastal Park later created in 1979 (17,584 ha). Parks Victoria manages the parks in accordance with the *Lakes National Park and Gippsland Coastal National Parks Management Plan 1998*. The two parks are both listed on the Register of the National Estate (DEWHA 2009). The management plan lists the key natural and cultural features that include the coastal dune systems, internationally recognised wetlands such as Lake Reeve and eighty-eight Aboriginal sites (Parks Victoria 1998, p.2). Flora and fauna recorded in the parks include six flora (Small-leaf Star-hair, Maroon Leek orchid, Dwarf Kerrawang, Metallic Sun orchid, Ribbed Thryptomene and Pink Zieria) and over twenty fauna species (Parks Victoria 1998, p.43). The parks receive over 200,000 visitors a year (GCB 2004), creating coastal management demands at peak holiday periods.

The Ninety Mile Beach is part of the Gippsland Lakes region and is an iconic natural feature in Victoria with spectacular beaches and coastal views. Adjacent is the Ninety Mile Beach Marine Park (2750 ha) ‘…found to have the highest species diversity anywhere on the planet. In ten square metres 860 species were discovered living in the sand and in one square metre a staggering 187 species’ (Parks Victoria 2009b).

Outside the national park, the Gippsland coast has been subjected to development pressures through what is known as old and inappropriate subdivisions:

The Ninety Mile Beach inappropriate subdivisions were undertaken during the late 1950s and early 1960s. Over that period, twenty-three (23) subdivisions were approved comprising approximately 11,500 standard suburban allotments spread over twenty-five (25) kilometres of the sensitive barrier extent of the Paradise Beach Township. The subdivisions took no account of topography, incorporating mobile ocean beach dune systems, sensitive ecosystems and flood prone land (Wellington Shire Council 2008a, p.2).

The Ninety Mile Beach coastal planning problems and challenges are discussed in section 4.2 on the planning framework. They pose major planning and environment management issues, intensified by the projected impacts of coastal inundation from climate change.
Significant private lands used predominantly for agriculture and increasingly urban
development flank the national parks, the lakes and the beaches. The major impact of private
land use is on the water quality of the coastal lakes system. Building on the earlier 1998 study
discussed above, research by the CSIRO during 2002 reinforced the view that the primary
target for the health of the coastal lakes system was to reduce nutrient levels. This required
effort across traditional jurisdictional boundaries and cooperation between government and
non-government bodies, and had serious implications for the future planning of the region,
discussed later. In 2004, the Gippsland Lakes and Catchment Taskforce undertook a further
review, adopting the condition-pressure-response model used in the national state of
environment reports (GCB 2004). Again, the key environmental issues identified included
‘the levels of nutrient and sediment inputs to the lakes; hydrological balance from alterations
to river flow; the incidence of blue-green algal blooms; and the loss of biodiversity’ (GCB
2004, p.22). The main focus of the taskforce has been the nutrient reduction in the Macalister
Irrigation District, for example, on farm measures including effluent dams (pers. comm.
Helen Martin, Chair Gippsland Coastal Board, August 2009). The Gippsland Lakes and
Catchment Taskforce concluded: ‘Future strategies need to embrace regional collaboration
not to receive the benefits in areas of process efficiencies, but to ultimately achieve holistic
gain — ecologically, financially, socially and culturally for all and for generations to come’
(GCB 2004, p.23). The taskforce concluded that ‘emerging’ issues affecting the Gippsland
Lakes included urban development, climate change, changes in land use and the impact from
bushfires (GCB 2004, p.22–23). The principal strategy recommended for response was
greater regional collaboration between the multiple stakeholders. The issue of a regional
approach to coastal planning and management is raised again in the Geelong case study
(Chapter 5) and its implications for ICM discussed in Chapter 6.

4.1.4 Coastal and land use activity

The Gippsland Lakes region is a major non-metropolitan tourism destination with an
increasing permanent residential population. The Wellington Shire Council is 11,000 sq.
kilometres and extends from the coast to the Australian Alps. It has a population of
approximately 40,000 people with the principal township of Sale surrounded by over thirty
communities including a number of coastal centres (Wellington Shire Council 2008b). The
main coastal and land use activities include tourism (coastal and wineries), offshore oil and
gas, agriculture, manufacturing and a major RAAF base. The shire does not expect significant
urban growth and is more concerned with an ageing population and the ‘…number of young
people between 19–40 is decreasing’ (Wellington Shire Council 2008b). The coastal
pressures are more a result of the impacts of tourism, including sudden increases in ‘summer’ populations, inappropriate residential development and one-off major tourist developments (for example, golf course estates). Considerable effort is going into managing past planning mistakes such as the extensive ‘old and inappropriate’ coastal subdivisions of the Ninety Mile Beach. The projected impacts of climate change, particularly sea level rise and storm surge, are also high on the planning agenda. Planning responses by the Wellington Shire Council include the Wellington Coastal Subdivision Strategy 2005, and the Climate Change and Sea Level Rise Implications: Ninety Mile Beach and Lake Reeve — Honeysuckles to Paradise Beach plan (Wellington Shire Council 2008b,c).

The adjacent Shire of East Gippsland extends from the Wellington Shire Council to the New South Wales border. It also has a population of approximately 40,000 spread over a number of settlements. The principal urban centre, as noted above, is Bairnsdale with the key settlements of Lakes Entrance, Metung, Paynesville, Orbost, Buchan, Omeo and Mallacoota. The main coastal and land use activities include agriculture, timber, fishing and nature tourism. East Gippsland includes marine national parks (Cape Howe, Point Hicks, Beware Reef Marine Sanctuary). Croajingalong National Park (87,500 ha) is at the eastern end of the shire and has a one hundred kilometre coastal frontage. It is classified as a UNESCO Biosphere Reserve. It lies outside the immediate case study of the Gippsland Lakes but importantly forms part of the extensive coastal public lands system in the Gippsland region.

4.1.5 Coastal governance arrangements

The Gippsland Lakes is an interesting case study in coastal governance. Several government bodies govern the Gippsland Lakes and a number of non-government organisations take an active interest in coastal planning. On the government side the principal bodies are: Wellington Shire Council (land use planning), East Gippsland Shire Council (land use planning), Gippsland Coastal Board (regional body advising the Minister for Environment and Climate Change on coastal planning and management), East Gippsland Catchment Management Authority (responsible for waterway and catchment management), West Gippsland Catchment Management Authority (responsible for waterway and catchment management), and local water authorities (water supply, wastewater and waste recovery services). There are also a number of government coordinating bodies including the Gippsland Lakes and Catchment Taskforce and also various community groups (‘friends of’ and ‘coastal action’ groups). The Gippsland Lakes is also affected by a number of
international environment agreements including the Ramsar Convention, the Japan Australia Migratory Bird Agreement (JAMBA), and the China Australia Migratory Bird Agreement (CAMBA). These agreements recognise the international significance of the coastal environment, particularly the wetlands and the importance of providing adequate environmental protection for these feeding grounds.

The shires of Wellington and East Gippsland are the principal urban planning bodies. The Gippsland Coastal Board (GCB) plays an important role in advising the Minister for Environment and Climate Change on coastal matters, particularly coastal action plans, as provided for in the Coastal Management Act 1995. The GCB has undertaken a lead role in recent years in developing a more strategic approach to settlement planning and most recently a concentrated program to understand and plan for the impacts of coastal climate change. This has been undertaken in partnership with the CSIRO and the local councils and is regarded as a model in a regional approach to coastal climate change (Norman 2009b). These governing bodies bring their own strategies and plans involved in managing the future of the coastal region, each with their own boundaries. The range of planning responses is discussed in detail in Section 4.2. A key question for consideration is whether the current coordination mechanisms from catchment–coast–marine parks are adequate to safeguard the coastal environment and deliver ‘integrated’ coastal management for the Gippsland Lakes.

4.2 Current coastal planning framework

The coastal planning framework for the Gippsland Lakes is reasonably complex. The following is a discussion of the coastal planning framework and the principal environmental and planning policies that apply to the Gippsland Lakes region. The mix of public and private lands and the coastal marine environment involve multiple jurisdictions, creating policy challenges in achieving ‘integrated’ outcomes for the coastal environment. The key state legislation affecting the Victorian coast was outlined Chapter 3.

The Gippsland Lakes has been the subject of many inquiries and plans. Despite this, the issue of deteriorating water quality in the lakes continues, as discussed below, compounded by the cumulative impacts of coastal development, agriculture, land use activity and extreme weather events (flood, bushfire) associated with the projected impacts of climate change. The cumulative impact of these pressures has attracted significant government attention over the last decade. The following discussion of strategic plans focuses on four key aspects in this case study: water quality in the lakes, coastal development, coastal climate change and the contribution of a regional forum based on collaboration.
In response to significant concern about the deteriorating water quality of the lakes system, the Victorian Government commissioned the CSIRO to investigate threats and impacts on the water quality of the lakes system (CSIRO 1998, 2001). The CSIRO research concluded that a very substantial reduction of nutrients has occurred in the lakes, in the order of fifty to seventy per cent (CSIRO 2001, p.v). Following the findings of the CSIRO investigations, the Victorian Government developed a strategic statement (NRE 2002). It was an overarching directions statement and set a target of reducing nutrient levels entering the lakes overall by forty per cent over twenty years. In doing so it provided policy guidance to other key plans in the region including the Gippsland Lakes Coastal Action Plan, the two Gippsland regional catchment strategies and local government plans.

The Future Directions and Action Plan crystallized the overall future planning and governance challenges for this sensitive coastal lakes system. It established a set of guiding principles: adherence to the precautionary principle when considering the impact of management actions; management of the Gippsland Lakes in accordance with Ramsar objectives and Victoria’s Biodiversity Strategy; consideration of economic, environmental and social implications and measures; definition of shared outcomes to enable shared decision-making; facilitation of broad community ownership and use of adaptive management principles (NRE 2002, p.11). The plan was supported at the time by significant state budget funding of $12.8m over four years. However, this level of support does not appear to have persisted. Following the 2008 Victorian budget, Professor Barry Hart, Chair of the Gippsland Lakes and Catchment Taskforce ‘expressed his disappointment that the State budget contained no direct funding to continue the good work for the Gippsland Lakes’ (Hart 2009). He continued that ‘the condition of the Lakes has been brought about by previous decisions and for many years to come. This is why a long term and ongoing investment by governments and the community is absolutely essential’.

During 2002, the GCB released their Coastal Action Plan ‘to provide an integrated approach to coastal planning in Gippsland’ (GCB 2002, p.iii). This was to guide local councils and other relevant bodies in future coastal planning in the Gippsland region and importantly to apply to both public and private lands. Since then the Victorian Coastal Strategy has been revised and strengthened with the inclusion of the issues of climate change and the marine environment (VCC 2008). There are signs that a more integrated regional approach to settlement planning for the Gippsland Lakes will be developed during 2009–2010. The Gippsland Coastal Board will lead the development of the integrated coastal strategy.
According to the Chair of the Gippsland Coastal Board, Helen Martin, the ‘GCB is currently reviewing both the Gippsland Lakes Coastal Action Plan and the Integrated Coastal Planning for Gippsland CAP. We are proposing to roll both of them into a new CAP that will be called something like “Integrated coastal planning and management in a time of climate change”. A discussion paper about the scope and structure of the new CAP is being prepared’ (Helen Martin, pers. comm. 25 July 09). This is a very positive step forward as it could result in a more regional approach to coastal planning in Gippsland. It may also provide a model for a regional coastal plan for Victoria.

In relation to coastal development, there have been recent initiatives that have a direct influence on coastal planning in the Gippsland Lakes region. These build on the earlier plans discussed above. Wellington and East Gippsland shire councils each have planning schemes supported by key strategic documents, in particular the Wellington Coast Subdivision Strategy (discussed below) and the earlier East Gippsland Planning and Development Strategy (now absorbed into the shire’s local Municipal Strategic Statement). At the state level, the Coastal Spaces report outlines a coastal settlement plan for Victoria (as discussed in Chapter 2) and provides the basis for developing more detailed regional and coastal planning. I was a member of the Coastal Space Steering Committee and as a group we placed considerable importance on the Coastal Spaces report being presented in a manner that enabled practical implementation on the ground. Otherwise it would become just another plan.

Implementation of the recommendations of Coastal Spaces was pioneered in the Gippsland region with the Coastal Towns Design Framework for sixteen coastal settlements in eastern Victoria including the urban settlements in the Gippsland Lakes region of Loch Sport, Golden Beach/Paradise Beach, The Honeysuckles and Seaspray. The implementation program continues today. The purpose of the design frameworks is to ‘provide guidance for the future development of urban areas and involve the preparation of realistic design concepts and planning provisions based on community consultation, research and analysis’ (Wellington Shire Council 2009b). The Coastal Towns Design Framework for Gippsland involves a wide range of stakeholders (community groups, design professionals, government decision makers) in developing local designs for coastal settlements in each township. Community meetings are strongly attended (e.g. Loch Sport meeting of over 300 people in a township of 900 people, June 2005), providing feedback on the draft urban design frameworks (Wellington Shire Council 2007a). I attended the Mallacoota forum (October 2006) and witnessed a high
level of participation and vigorous community feedback. Following this, I contributed an independent article to the local newsletter (*Mallacoota Mouth*, November 2006) on the proposals there. Project newsletters and community design workshops supported the planning program. This process is not new in many ways but tackling sixteen coastal townships in a coastal region involving more than one local government in a continuous community dialogue is unique in coastal Victoria. The implementation of the urban designs project is ongoing and local government budgets have commenced and are committed to urban planning/design works emerging from this process. For example, the East Gippsland Shire Budget 2009–2010 committed $120,000 for the urban design framework implementation projects (East Gippsland Shire Council 2009). Financial commitment by the local council is a tangible indication of commitment to implementing the coastal urban design and plans. The Coastal Towns Design Framework received the national Urban Design Award by the Planning Institute of Australia in 2007.

As mentioned earlier, the other major settlement planning initiative in the Gippsland Lakes region is the Wellington Coast Subdivision Strategy dealing with ‘old and inappropriate subdivisions’ on the Ninety Mile Beach. ‘Old and inappropriate subdivisions’ is a term to describe subdivisions that occurred last century on land not suitable for residential development at the densities involved. They lacked appropriate servicing, with no sewerage, reticulated water, drainage or sealed roads. The Victorian Government has largely avoided tackling this issue with the one notable exception being the consolidation of the face of Mount Dandenong during the 1970s. During that same period in the early 1970s, consideration was also given to buying back the old and inappropriate subdivision on the Ninety Mile Beach comprising 11,500 allotments on sand dunes and flood prone lands. However, public acquisition was deferred as it was considered at the time to be too costly (Wellington Shire Council 2008c). As is often the case in planning, in retrospect this could have been a comparatively cheap and effective solution. Since then houses have continued to be built, resulting in continuing uncertainty about land ownership issues for the past thirty years (Wellington Shire Council 2008c) and an almost unsolvable coastal planning problem.

During 2007, the Wellington Shire Council Planning Scheme incorporated a Ninety Mile Beach Policy (Wellington Shire Council 2007b) statement to form the basis for the long-term land use and development intentions for the Ninety Mile Beach. Its primary objective is ‘to discourage development that adversely impacts on the coastal and lakes environment’ (Clause 22.08). Importantly it defines urban nodes, low residential density guidelines and plans for
coastal inundation and ranges from prohibiting to restricting development rights. This has resulted in major community concerns by existing landowners and is still in the process of being resolved (ABC News 2008). The Ninety Mile Beach scenario raises the whole question of when it might be appropriate to use public acquisition of coastal lands as an effective coastal protection measure.

The New South Wales Coastal Lands Protection Scheme, the subject of my Master of Environmental Law research paper (Norman 1996), has lasted over thirty years and provides one approach to a long term coastal lands acquisition program. The criteria for public acquisition are threefold: public access, scenic quality and ecological values (Department of Planning 2009). The experience in NSW demonstrates what can be achieved over time through a strategic approach to public land acquisition of environmentally sensitive lands. The NSW Coastal Lands Protection Scheme commenced with a small seeding grant in 1973 and has been funded to varying degrees on a bipartisan approach. The long-term outcome is a significant expansion of publicly owned coastal lands in NSW, specifically ‘approximately 15,336 hectares at a total cost of $67.87 million have been acquired, as at March 2008’ (Department of Planning 2009). Such a concept deserves wide consideration for coastal Australia. If a similar scheme had been implemented during the 1970s for the Ninety Mile Beach, the outcome for that coastal environment would be very different today. Instead, during April 2009, Wellington Shire council resolved to adopt a four-pronged planning response involving no public compulsory acquisition: ‘permanent rezoning of blocks outside the designated settlement areas as Rural Conservation Zones; affected landholders can choose to surrender their land title and be eligible for an adjustment package equal to their 2006 property valuation plus 20%; the Victorian government, rather than Council, to acquire ownership of surrendered blocks; and a five-year time frame to accept the adjustment package process’ (Wellington Shire Council 2009a). As an outcome of the above process, in September 2009, the Wellington Shire Council issued a permit for development in the Ninety Mile Subdivision (Section 173 Local Government Agreement). The agreement places a caveat on the land title in relation to future coastal inundation from climate change including possible removal of buildings (Derkley 2009, pp.4–5). This is one example of a local council response to the impending challenges of coastal inundation from climate change. However, I suspect it is not a long-term solution for environmental protection of the Ninety Mile Beach.

In relation to coastal climate change, the Gippsland Coastal Board (GCB) has pioneered a comprehensive regional analysis of the IPCC projected impacts of sea level rise and storm
surge for coastal Gippsland. The GCB, comprising government, community and specialist representation, initiated the research and commissioned the CSIRO Marine and Atmospheric Research Centre to undertake a joint investigation. The climate change project comprised three major reports (CSIRO 2005a,b, 2006). A fourth final report, a compilation of all the research findings was prepared by the Gippsland Coastal Board- Climate Change, Sea Level Rise and Coastal subsidence along the Gippsland Coast (GCB 2008a). The Gippsland climate change research program is a comprehensive regional scientific investigation of potential impacts on Gippsland and in particular the Gippsland Lakes region. The key conclusion of the final report for coastal planning is as follows:

The threats to the Gippsland coast are real, and are significant. The best scientific predictions are indicating that within 50 years parts of the Gippsland coast will be inundated to an extent requiring protection or relocation of assets, including dwellings and commercial buildings. Decisions need to be made now about how to deal with this situation (GCB 2008a, p.4).

A key recommendation is ‘that the necessary decisions be made by the state and federal governments to provide a clear policy direction for dealing with anticipated climate change, sea level rise and subsidence effects (GCB 2008a, p.4). The approach undertaken by the GCB with CSIRO and others provides an evidence-based regional approach to coastal climate change and in many ways a model for consideration elsewhere in Australia. The research findings are informing policy development in coastal Gippsland (e.g. Ninety Mile Beach policy), and at a state and national level (planning policies for sea level rise). The federal Department of Climate Change has since initiated a number of programs for coastal climate change adaptation including local adaptation pathways, integrated assessment of human settlements and coastal vulnerability, discussed in Chapter 2 (DCC 2009c).

The Gippsland climate change research program has harnessed existing networks around a common interest and brought in new players including academics, specialists and collaboration between the catchment, ports authority, scientists, urban planners, local councillors and community representatives. The Gippsland Coastal Board, particularly its chairman at the time, Duncan Malcolm, played an instrumental role in driving the project, connecting the various networks and raising community awareness in the media. As Malcolm commented in a media release, ‘Regional collaboration will be a key driver for change in Gippsland. The Gippsland Coastal Board considers councils and community organisations to be central to this collaborative effort in the future’ (GCB 2008b). This issue of regionalism is discussed in Chapter 6 as a key policy response. Duncan Malcolm was awarded the
The test in coastal planning is often in its application. Planning for coastal climate change is no exception. During 2008, the Wellington Shire Council issued Guidelines for Preparation of a Climate Change (Sea Level Rise) Response Plan in response to major threats of coastal inundation projected for the Ninety Mile Beach ‘old and inappropriate subdivision’ discussed earlier. During July 2008, a planning appeal case for a proposed development of houses on lots in an old Crown subdivision at Toora, South Gippsland, was refused, in part on the grounds of possible sea level rise in the future from climate change (VCAT 2008). This was a landmark planning decision, being the first ruling in Victoria on planning for climate change. The VCAT decision states that ‘the construction of dwellings on land subject to inundation is contrary to policy and not a good planning outcome. This area is also at risk of inundation due to sea level rises resulting from climate change’ (VCAT 2008, p.1). The decision attracted significant national media coverage at the time. In an interview by Lisa Whitehead, ABC 7.30 Report, I commented on the need for a more national approach to planning for coastal inundation in Australia as storm surges and sea level rise do not respect jurisdictional boundaries (Whitehead 2008). Since the VCAT decision, further interstate rulings have been made and a current dispute on this issue is under way in Byron Bay NSW (ABC 7.30 Report, 24 June 2009). Clearly this issue will only increase, with significant implications for ICM in Australia.

Collectively the climate change research by the GCB and CSIRO, the experience by the Wellington Shire Council during 2008 and the developing concerns being expressed by urban planners (Norman 2008a) significantly influenced the inclusion of an innovative sea level rise provision of ‘not less then 0.8 metres’ in the Victorian Coastal Strategy 2008. In this respect, coastal planning in the Gippsland region has made a significant contribution to national understanding of the future challenges of planning for climate change. Integrating the evidence-based science at a regional level with coastal urban planning and coastal management has provided a new approach to planning for coastal climate change in Victoria. The example of the Ninety Mile Beach policy and permit restrictions provides an insight into the implications for coastal planning at the local level in planning for climate change. Recognising the importance of engaging the broader community in the research outcomes, the Gippsland Coastal Board hosted a two-day scenarios workshop (11–12 September 2008). The purpose of the workshop was to bring together the scientific evidence gathered by CSIRO on climate change for the Gippsland region with community leaders and decision makers. As a
keynote speaker at that forum, it was clear to me that there was a high level of interest in the future of the Gippsland Lakes region and concern particularly about coastal inundation. The impact of recent floods and bushfire on the water of the lakes was also high on the agenda. The design of this workshop was to present the evidence on the first day and then engage the participants in scenario planning for the region. For example, what would be required to relocate the township of Lakes Entrance because of coastal inundation from rising sea levels and storm surge from climate change? During the second day, the coastal decision makers and community leaders were asked to map alternative policy responses. This process combined scientific knowledge and evidence on climate change together with local experience and planning for the future of the Lakes Entrance.

Finally, mention should be made of the Gippsland Integrated Natural Resources Forum that ‘fosters strategic collaboration between natural resource managers in the Gippsland region to achieve catchment health for Gippsland’s wealth’ (GINRF 2009). It provides a regional basis for innovation and action in the Gippsland region. The forum has approximately sixty member organisations comprising approximately three hundred individuals, but its membership is fluid as anyone interested can join the forum via the web. It plays three roles: information exchange, leadership and facilitating partnerships. The information function is summarised in an annual Gippsland Natural Resources Report Card produced since 2003 by the forum as an audit of conditions in the Gippsland region (GINRF 2009). Hosting events on critical issues such as coastal development provides both a leadership function and a facilitation role in fostering partnerships. The forum has no secure or long term funding base, relying on annual state and federal government grants. The catchment management authorities originally funded the forum, with small inputs from other regional organisations and shires. It is indicative of regional partnerships that have developed in Gippsland on a range of issues, three of which have been discussed in this chapter: the Gippsland Integrated Natural Resource Forum; the Climate Change in Eastern Victoria research program and the Coastal Towns Design Framework. This section has discussed some of the key planning responses to coastal planning in Gippsland, particularly urban settlement, climate change and water quality. The following section presents a discussion on the emerging issues, given the identified coastal threats of land use, coastal urban development and climate change and the coastal planning framework for the Gippsland Lakes region.

4.3 Coastal planning and management issues
The Gippsland Lakes case study raises a number of coastal planning and management issues. These are discussed with a focus on what the implications may be for the theory and practice of ICM. The key issues identified from this case study concern planning and management of coastal environments across multiple jurisdictions (governance), the particular challenges of protecting coastal lakes, the issue of coastal development (residential and tourist) and planning for coastal climate change. The rural regional location of the Gippsland Lakes brings some different challenges to those raised by Point Nepean and the Geelong region, such as the impact of agricultural and rural land use activity on water quality. I would also suggest that the governance issues are possibly different in more rural regions, with key local community leaders playing a very significant role and some innovative partnerships developing through these networks, as discussed later.

4.3.1 Coastal governance

The governance of the Gippsland Lakes region is complex, given the number and diversity of agencies involved. Despite this significant government activity, it is argued that there remains no adequate mechanism for providing an integrated approach to coastal planning in the Gippsland Lakes region. There are various reasons for this, some of which were raised in the Gippsland focus group. These include the funding mechanisms, history of organisational arrangements, the role of local government and the lack of statutory weight in coastal planning policy. As commented by one focus group participant:

> There’s been a view for a while that there are too many agencies that have a management role in the Gippsland Lakes, suggested the number is around 30 …there is also a view that that functionality could be rationalised, simplified, duplication taken out…Commission-like structure for whole of the Gippsland Lakes that would take over a management overseeing (Duncan Malcolm 2007, Gippsland coast focus group timed at 1 hour and 3 minutes).

In addition to the multiplicity of bodies is the nature of the funding programs. A distinct characteristic of the funding programs is their sectoral basis, i.e. funding for water quality, coastal foreshore programs, urban design frameworks, and climate change research. The result is that initiatives have been ‘responding to funding rather than a more strategic approach’ (Duncan Malcolm 2007, Gippsland coast focus group timed at 1 hour and 3 minutes). The Victorian Coastal Strategy 2008 and the work by the Gippsland Coastal Board have the potential to bring the collective efforts into an integrated approach to coastal planning. The GCB’s intention to prepare an integrated coastal plan 2009–2010 may well
provide the necessary template for more effective and sustainable coastal planning. However, there will remain at least two major impediments to implementation: the GCB does not have statutory powers to enforce coastal policy and there are other government bodies that have long histories in the region with significant powers and funding to continue implementing their own policies and programs.

As discussed in Chapter 2, the role of the coastal boards in Victoria is ‘advisory’. The ‘advisory’ nature of the coastal boards has enabled a high level strategic approach, providing advice to the Victorian Minister for Environment and Climate Change. This attribute was reinforced in evidence presented by the coastal boards to the House of Representatives inquiry into Climate change and environmental impacts on coastal communities (GCB 2009, CCB 2009b). However, it is suggested that a mechanism is required to give serious effect to an integrated coastal policy that binds the local councils and the vast range of government bodies. The environmental health of the lakes system, the coastal environment and the impacts of climate change make this an imperative. For example, despite considerable investment and effort by the Gippsland Lakes and Catchment Taskforce over recent years the state of the Gippsland Lakes remains at risk, discussed in more detail below.

Regional governance options for coastal planning will be discussed in Chapter 6 with the aim of addressing the ongoing and significant impediments to successful implementation of coastal planning policy. I would suggest that in Gippsland there is an even more fundamental underlying problem and that is the lack of any state government regional strategic plan for Gippsland that can effectively coordinate and integrated coastal planning and management in Gippsland. In other words there is no regional planning process or plan that provides a framework for a more specific integrated regional coastal plan. Therefore, despite considerable public agency activity in this region, there remains no effective coordinating mechanism (planning or governance) that cuts across public and private lands and holds the actions of governments accountable to a set of shared and agreed objectives from catchment to coast to ocean. This is the governance challenge for the Gippsland Lakes region. This is recognised in the Commissioner for the Environment’s 2008 State of the Environment Report, which recommends:

CES0.2 Coordination of the monitoring and management of Victoria’s coastal and marine environment should be improved. Review the governance arrangements and strategic planning processes established under the Coastal Management Act 1995. A major focus should be on the capacity of coastal management bodies to successfully
fulfill their legislative responsibilities and examine opportunities for improving coordination. State Government should provide appropriate funding to expedite the implementation of the review’s recommendations into planning law (CES 2008a, p.46).

The issue of regional coordination was also raised in the Gippsland coastal focus group and is further discussed in Chapter 6. As Malcolm remarked, ‘I think we still haven’t got the marrying of the natural resource management and the statutory planning component — it’s a difficult thing to marry and maybe you can only marry it if you do have a model where you call it local government or regional government and is virtually doing everything’ (Duncan Malcolm 2007, Gippsland coast focus group timed at 54 minutes).

4.3.2 Environmental protection of the lakes

The environmental health of the lakes system is an ongoing issue. This thesis is from an urban and coastal planning perspective and as such does not bring expertise in the environmental science of water quality management. However, clearly the land use planning and development control affecting the lakes system needs to be considered as part of any approach to coastal planning for the Gippsland Lakes region. This issue emphasises the connections between catchment management and coastal planning. In the Gippsland Lakes area there are two catchment authorities that effectively divide upstream management of the waters to the lakes: the East Gippsland Catchment Management Authority and the West Catchment Management Authority. The establishment of the Gippsland Lakes & Catchment Taskforce was recognition of the need to provide improved regional coordination, at least within government. The members include representatives from state and regional water bodies and one representative of the local government network. The two local councils are not individually represented, which seems to be an important omission and a missed opportunity for regional integration. It is a government-only body with a coordinating and advisory capacity. As discussed earlier in this chapter, the Gippsland Lakes and Catchment Taskforce has produced an extensive body of research on the lakes. However, government funding for the Gippsland Lakes environmental protection has been reduced (e.g. Victorian Budget 2008–9). While the State of the Environment Victoria 2008 report did not propose any specific recommendations on the Gippsland Lakes, it did make a clear recommendation that the connection between catchment management and planning processes be strengthened:

LB2.12 The Victorian Government should undertake a study to identify the most significant barriers to effective protection of environmental assets. This
investigation should include relationships between CMAs and planning authorities, alignment between catchment planning and land use planning processes and objectives, resourcing of strategic and statutory planning in relation to environmental assets, and flow of information between State Government departments and planning authorities (CES 2008a, p.36).

The focus of this thesis is not on catchment management. However, it is important to recognise in this thesis that the connection between public and private land management is critical to ICM, and the commissioner’s findings confirm that this continues to be a dominant issue in Victoria. The above discussion shows that the Gippsland Lakes is no exception in this context and the future environmental health of the Gippsland Lakes will depend in part on how this issue is resolved. During July 2009, the Victorian Government released a discussion paper examining some of these critical issues (DSE 2009c). Furthermore the declining level of water supply for metropolitan Melbourne is placing significant pressure on the government to extract more water from the Thomson River, a major water source flowing into the Gippsland Lakes. ‘It is an indictment of water policy over the past decade that Victoria has come full circle back to the crisis of 1999 when Melbourne was draining the life out of the Thomson at the region's expense’ (The Age 2009b). These catchment coast issues are very important for the environmental health of the Gippsland Lakes and have implications for ICM in the context of the catchment–coast–ocean continuum.

4.3.3 Regional planning

As discussed in Chapter 2, a long term issue for coastal planning has been coastal development. In the Gippsland region, the pressures for residential and tourist development are increasing, resulting in consequent demands for infrastructure, accommodation and services. The Gippsland Lakes region falls between a coastal getaway and a coastal lifestyle destination (Gurran et al 2005). The region has a permanent population that has grown up around the key industries of fishing, farming, logging, off shore oil and gas extraction. The distance of the lakes from metropolitan Melbourne has somewhat moderated the rate of urban growth compared to other parts of coastal Victoria, as shown in Map 4.2.
The main issues are land use activity affecting the Gippsland Lakes, discussed above, coastal development on previously subdivided coastal land (e.g. Ninety Mile Beach), and stand-alone quasi-tourist developments keen to locate as close as possible to the shoreline. For example, the proposed ‘Wellington Waters’ involved a one billion dollar ‘eco-friendly’ town comprising a canal development on Lake Wellington with 100 waterfront homes, a marina on the Gippsland Lakes, equestrian centre and geothermal spa resort. It received strong support for its perceived economic benefits to the Gippsland region, including support from the local mayor and senior council staff:

The council's director of community and development, Steven Dickson, said the new town would provide a much-needed boost to the shire's dwindling population. It would be the first waterfront development in the shire and it would be home to 3500 people. Shire mayor Malcolm Hole said he was a long-time supporter of the project. He said the success of the canal developments at Paynesville showed they could be done in the western end of the Gippsland Lakes… Peddle Thorp Architects have been employed for the project. Mr Troedel said the development had 18 kilometres of canals and the...
infill would be used to raise the site, which was prone to flooding. The 200-metre-wide canals included islands with bush and each block had a jetty (Keenan 2005, p.1).

To achieve the above the land required rezoning and approval by the Victorian Minister for Planning. In this particular case, the advice of the Gippsland Coastal Board and the Victorian Coastal Council to the Minister for Planning was to not support this proposal. This advice directly contributed to the minister’s refusal of the planning amendment to allow for Wellington Waters (pers. comm. Duncan Malcolm, former Chair Gippsland Coastal Board, 24 September 2009). It is a good example of the kinds of pressures that come to bear on local councils dealing with major development proposals and the advice that is provided at a regional and state level on significant coastal development proposals.

The absence of a regional settlement strategy for Gippsland makes it difficult to provide adequate guidance for the local councils keen to promote local economic development. The East Gippsland Shire has reviewed the East Gippsland Planning and Development Strategy 1997 (East Gippsland Shire Council 1997) but has “since reverted to the common local government practice of preparing separate strategies for environment, economic development, tourism etc” (personal communication Helen Martin, August 2009). The Wellington Shire Council does not have a strategic plan other than its MSS. So the significant issue for settlement planning in the Gippsland Lakes is that there is no strategic plan. Both shires are required to have their planning schemes reviewed every five years and this gives the Victorian Government the opportunity to ensure the intentions of the VCS 2008 are incorporated into local planning provisions. As the rate of growth in the Gippsland Lakes is not as pressured as coastal areas close to Melbourne, there is time to establish urban planning strategies and controls that will protect the coastal environment. The underlying challenge for these coastal locations is to convince policy makers that planning before significant urbanisation is preferable to responses after the fact and that appropriate infrastructure provision to protect water quality and coastal environments need long term planning and adequate public investment. The benefit of a regional strategic plan is to provide that long term vision that outlines the settlement strategy and enables an integrated approach to sustainable development and the provision of appropriate infrastructure.

4.3.4 Climate change and coastal inundation
Finally the impending threat of coastal inundation as a result of climate change is a very important issue for the low-lying coastal lands of the Gippsland Lakes. This is why it has attracted so much attention at all levels of government including the funding of a large ongoing research program by the federal Department of Climate Change. Planning for climate change is an emerging practice, inherently interdisciplinary, requiring a range of responses and tools for implementation. Providing the scientific evidence, as the CSIRO has for Gippsland, is one step in the process but the uptake of knowledge and then the skills to respond and implement appropriate policy responses is another critical step. In a commissioned report, I emphasised that while there is a range of planning responses available for coastal inundation from sea level rise and storm surge (discussed earlier in Chapter 2), ‘each country is developing a range of measures along this continuum, often influenced by history and culture as geography’ (Norman 2009b, p.13). This is also true for coastal Victoria and regional Gippsland as illustrated by the legacy of the ‘old and inappropriate subdivisions’ in coastal areas, the farming and rural land use traditions and the preparedness or capability of local councils to deal with planning for climate change. As Merrit commented in the Gippsland coast focus group, ‘I was actually really disappointed with the reaction and lack of interest of a proportion of councillors in terms of it being hot on the heals of the floods within 6 to 8 weeks of having significant amounts of water across Raymond Island, Paynesville and Lakes Entrance (Peter Merrit 2007, Gippsland coast forum timed at 25.13 minutes). Cultural change takes time. Natasha Vasey-Ellis provides a further example at the local government level in her research investigation. Her survey of twenty-two Victorian coastal councils found that ‘climate change is not being adequately addressed via statutory planning in Victoria’ (Vasey-Ellis 2009). An example raised by a respondent in the Vasey-Ellis research was ‘Wellington Waters’ discussed above, recommended by the local council (Shire of Wellington) and subsequently refused by the state government on the basis of the Victorian Coastal Strategy 2008 and other state policies (Vasey-Ellis 2009, p.11). This highlights the challenge of implementing urban planning responses for coastal inundation and climate change at the local level.

Planning for climate change was the most frequently mentioned issue in the Gippsland focus group discussion. The scientific evidence has been gathered for the Gippsland coast but there continues to be a gap between the evidence, community concerns and any adaptation of the local or regional coastal planning system to climate change. As commented by another focus group participant, ‘It’s the question about do you invest in avoidance at this stage of unwise
decisions or do you bail out at the other end of the process when the investments have already been made and the expectation will be strong’ (Helen Martin 2007, Gippsland coast forum timed at 34.18 minutes).

4.4 Implications for the theory and practice of ICM

The case of the Gippsland Lakes has implications for integrated coastal management. The Gippsland Lakes case study has focussed on examining research question 3: What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change? The above discussion on the Gippsland Lakes has outlined a brief history, the coastal environment, the governance arrangements, the planning framework and the key issues for this coastal region. The Gippsland Lakes case study has particularly focussed on the issues of water quality in the lakes system, coastal development, governance mechanisms and coastal inundation due to climate change. This analysis has been from a coastal planning perspective. The case study adds to the evidenced-based inquiry into the disjuncture between the theory and practice of ICM and raises implications for coastal planning both in Victoria and more broadly Australia. In particular it is suggested that the Gippsland Lakes has highlighted the following five implications for the theory and practice of ICM:

i. The science is not enough: the extensive scientific investigations into the water quality of the lakes systems, the possible impacts of climate change and the broader research by the Commissioner for Environment has provided a significant body of scientific research for the Gippsland Lakes region. However, this research has largely been approached on a sectoral basis and has not been translated into local planning strategies and planning law. This highlights the need to find new ways of facilitating the uptake of knowledge and translating this into action on the ground. This is a broader issue that has, in the larger realm, been demonstrated by the lagged responses to the science of climate change, for example in Australia.

ii. Community engagement is critical to effect change. As discussed in the chapter, the engagement of the different local communities in the urban design frameworks and the scenarios workshop for climate change led to real change in the former and the beginnings of an understanding by local coastal decision makers in the latter. ‘Communities should be more involved in determining coastal character especially town character — it is important that communities be more involved in helping
determine what that is…the residents and people around know best in what maintaining character is’ (Natasha Vasey-Ellis 2007, Gippsland coast focus group timed at 43.42 minutes). The importance of community involvement in a meaningful way was also highlighted in the Point Nepean case study. This is a continuing theme emerging in this thesis.

iii. The issues are larger than local and in some cases state government. A clear message from the Gippsland focus group discussion was that issues such as coastal climate change are ‘bigger than local government’ and require state and national government involvement in finding solutions that involve multiple jurisdictions and sectoral government agencies. The implications for ICM from the impacts of climate change, particularly coastal inundation, are very significant. The rhetoric of ‘integration’ will be seriously tested with the most local level of government seeking assistance to manage the associated increased risks and uncertainties for coastal planning and management. This issue is a consideration of the current federal inquiry into climate change and the impacts on coastal communities.

iv. Regional planning and coordination is an essential component to effect integration. This is highlighted by the development of regional coordinating bodies including the Gippsland Coastal Board, the Gippsland Lakes and Catchment Taskforce and the Gippsland Integrated Natural Resources Forum. The issue raised in the Gippsland Lakes case study is that, while different groups are taking a more regional approach to coastal issues and improved coordination within, the continuing gap is that no body or persons have an overarching mandate or responsibility to take an integrated regional perspective and sufficient legislative powers to give effect to policy outcomes through strategic and statutory measures at the local level. The policy dilemma for ICM is how to integrate coastal interests into a broader land use management process without losing a coastal focus. This is discussed under regional governance in the Geelong case study (Chapter 5) and the possible coastal governance alternatives in Chapter 6.

v. A set of shared objectives and agreed outcomes over the long term is critical to long term coastal environmental protection. The absence of comprehensive strategic plans at the local and regional levels means there are no policy mechanism to integrate the actions of the multiple actors and agencies around an agreed set of policy outcomes for the coastal environment. The risk is that this relies too heavily on ‘goodwill’, a
point raised in the Gippsland focus group, and particular champions of the coast and
does not provide a basis for long term positive environmental outcomes. The lack of
process for achieving this on a tripartite basis was also highlighted in the Point Nepean
case study. The Gippsland case study emphasises the lack of a process to achieve
horizontal integration through collaborative agreement and community engagement.

The implications for the theory and practice for ICM is that, while there is a theory on
integration, there is little in practice. This disjuncture between theory and practice is an
important theme throughout this thesis. There is often ‘goodwill’, project-based public
investment, and shared knowledge but the question remains: Is this sufficient to effect
change? It points to something more fundamental, that the theory relies too heavily on a
precondition that there are shared objectives and assumes a commitment to public-good
outcomes. This is often not the case in the coastal environment due the wider pressures
discussed above and in fact goes to the heart of the challenge of coastal planning, not only in
Victoria but Australia-wide. It is possible that wider socio-economic drivers influencing
coastal development and climate change responses require a more systematic response than
can be offered by ICM alone. This implication for ICM will be discussed further in Chapter 6.
5. The Geelong region: Case Study 3

5.1 The Geelong region, a coastal urban growth centre

5.1.1 Introduction

This chapter presents a case study of a significant coastal urban growth region located on the edge of the major metropolitan city of Melbourne. The Geelong region is defined to include the City of Greater Geelong, the shires of Surf Coast, Golden Plains and Colac Otway and the Queenscliffe Borough (note township has a different spelling of Queenscliff). This definition is drawn from the G21 Geelong Region Alliance, being ‘the formal alliance of government, business and community organisations, working together to improve people's lives in the Geelong Region’ (G21 2009a). Particular attention is placed on the coastal areas of the City of Greater Geelong, the Borough of Queenscliffe and the shires of Surf Coast and Colac Otway. Golden Plains as an inland shire is important in providing the regional context to coastal pressures.

Map 5.1 Location of the Geelong region

The Geelong region is situated between Port Phillip Bay and the Southern Ocean of Bass Strait. It includes a wide range of coastal and land use activity ranging from the principal urban centre of the City of Geelong to coastal urban settlements, rural residential, hobby farms and agricultural lands. It contains the major trading port of Geelong, the Queenscliff Harbour and several smaller ports and public jetties (Apollo Bay, Barwon Heads, Lorne, Port
Arlington) with associated marine industry and tourism-related activities. The residential population of the Geelong region is approximately 270,000 and is expected to rise to 400,000 by 2051 (G21 2007, p.32). The coastal and land use activity is discussed in more detail in Section 5.1.4.

Figure 5.1  City of Geelong on Port Phillip Bay

![City of Geelong on Port Phillip Bay](image)

David Tatnall 2009

The primary purpose of Chapter 5 is to examine the theory and practice of ICM in the context of a major coastal region adjacent to a metropolis involving multiple jurisdictions. It is responding to research question 3: What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change? It is the most complex of the three case studies with more intensive pressures on environmental assets. This case study explores the challenges of ‘integration’ in a region involving five municipalities, a bay and ocean interface and pressures of coastal urbanisation. Several important coastal issues are especially highlighted, including planning for coastal climate change, coastal development, regional governance and the integration of ICM with spatial planning. This case study complements the earlier two case studies in that it examines more closely urban and regional planning dimensions in relation to ICM. Point Nepean focussed on vertical integration of ICM, the Gippsland Lakes on horizontal integration of ICM and now the Geelong region on integration of ICM with urban and regional planning. In this respect it is intended that between the three cases studies a considerable range of issues will have been explored in relation to ICM in Victoria with possible implications for ICM more widely.
Chapter 5 is divided into four sections:

i. An introduction which includes a brief history of the area including the development of regional planning in the Geelong region, a description of the coastal environment, the current coastal and land use activity and existing coastal governance arrangements

ii. A description and discussion of the coastal planning and management arrangements including the statutory and strategic planning frameworks

iii. An examination of the coastal planning and management issues including coastal urban growth, coastal climate change and regional governance mechanisms for integration

iv. The implications for the theory and practice of ICM for future coastal planning in Victoria with possible lessons more generally for Australia.

5.1.2 A brief history including the planning of the Geelong region

The Geelong region has played a very important part in the history of Melbourne and Victoria. Overall, the region has provided agricultural and industrial resources, the second major port in Victoria, recreation services and a range urban settlements spanning from the City of Geelong to coastal townships and villages and rural hamlets. The Geelong region has been a distinctive and separate region from metropolitan Melbourne connected by major transport links including road, rail and shipping. More recently the urban expansion of metropolitan Melbourne, the sea change migration trend (as discussed in Chapter 2) and the major upgrade of transport links has brought the two regions must closer together. Each of the local council jurisdictions has its particular history and there is clearly a difference between the more urban areas flanking Port Phillip Bay and the coastal settlements fronting Bass Strait. This has been often reflected in governance arrangements persisting to the present, with the Geelong region being governed for example by two coastal boards: the Central Coastal Board (Port Phillip Bay to Breamlea) and the Western Coastal Board covering most of the coast facing Bass Strait to the South Australian border.

An important part of the history of Geelong is its regional governance. The following brief history of regional planning in Geelong provides the context for current governance and planning arrangements, a particular focus of this thesis. The approach in the Geelong region to coastal management through regional spatial planning is instructive in relation to possible future models of regional governance. The discussion outlines a particular phase of urban
governance in Australia that may provide lessons for better integration of ICM with urban planning. Since the 1960s, the Geelong region has experienced a range of governance arrangements including local council collaboration, the Geelong Regional Planning Authority, the Geelong Regional Commission, the Greater Geelong Council, and the more recent initiative in cooperative regionalism, the G21 Geelong Region Alliance (G21). These are discussed below.

A regional approach to planning in the Geelong region was first demonstrated as early as 1963 when eight municipalities cooperated to establish an approved planning scheme to cover the urban areas. This included the cities of Geelong, West Geelong, Newtown and Corio, and the shires of Bannockburn, Barrabool, Bellarine and South Barwon. During 1967, the Victorian Town and Country Planning Board in its report ‘Organisation for Strategic Planning’ stated that ‘Geelong merited investigation as a practical alternative to the further growth of Melbourne’ (Planning Workshop 1975, p.27). As a result of this report, the government determined to establish a regional planning authority together with a ‘Statement of Planning Policy’. In 1969 the Geelong Regional Planning Authority was subsequently established. The Statement of Planning Policy for the Geelong region stated that:

The region centred on Geelong shall be promoted and planned as a location for large-scale urban growth including business, industry and housing. The region shall be planned to accommodate a greatly increased share of the expected growth in the Port Phillip area to the optimum limits determined by regional planning studies. The planning of the region shall ensure that acceptable environmental standards are achieved and shall have regard to the high quality of the environment generally and the coastal areas in particular and the need to preserve established recreation opportunities’ (Planning Workshop 1975, p.28).

On 8 March 1972, the Victorian Minister for Planning requested that the planning studies be expanded to include ‘advising on ways and means by which the future population of Melbourne can be contained to a figure well below that envisaged in the current Melbourne and Metropolitan Master Plan now on exhibition; the means and measures which should be adopted to attract as much as possible of this population to areas outside the metropolis and the Port Phillip district, and the role which Regional Planning Authorities can play in assisting towards this objective’ (Planning Workshop 1975, p.27).

During the early 1970s there was also much interest by the federal government in the Geelong region. During October 1972, the federal government established the National Urban and...
Regional Development Authority (NURDA) responsible to Prime Minister McMahon. The Cities Commission quickly replaced NURDA after a change of federal government in December 1972. An external advisory committee to NURDA and then the commission advised on proposed growth centres: four metropolitan growth centres and nine regional cities, Geelong being one of the metropolitan growth centres. The committee stated that ‘Geelong had many advantages that favoured its development as a “systems city”. These advantages included a varied and broad economic base, a rich hinterland, transport facilities and attractive recreational opportunities’ (Cities Commission 1973, p.16). Similarly, ‘The Cities Commission report to the Australian Government of June 30, 1973 reinforced the Victorian Government’s view that the accelerated growth of the Geelong region could make a major contribution to a better distribution of population in the Port Phillip region’ (Planning Workshop 1975, p.29).

During this period, the federal government provided financial assistance for planning studies, commitments to the establishment of the CSIRO Animal Health Laboratory and a fourth Victorian university at Geelong (now Deakin University). This was confirmed in the budget papers circulated by Tom Uren MP, then Minister for Urban and Regional Development:

The Australian and Victorian Governments have agreed that Geelong will be established as a growth complex to accommodate accelerated growth and so become an important element in the structuring of future urban growth in the next 18 months, the Governments have agreed to a further phase of more detailed studies and the establishment of a development organisation to undertake the planning and development of the growth complex. Financial assistance will be provided when a formal agreement has been concluded (Australian Government 1974, p.29).

The Geelong Regional Planning Authority (GRPA) was the first of the regional planning bodies established in Victoria during the 1970s followed by the Westernport Regional Planning Authority and the Upper Yarra Valley and Dandenong Ranges Authority. These authorities had regional planning powers but were not like a commission with development powers. The GRPA provided much of the early strategic planning studies establishing a strong policy foundation for its replacement, the Geelong Regional Commission (GRC). The *Geelong Regional Commission Act 1977* established the GRC ‘to encourage, co-ordinate and assist in the development of the Geelong Region’. Importantly the GRC had powers to invest in industrial and commercial land. The Geelong region was defined in the same way as under the Geelong Regional Planning Authority. The GRC comprised five people appointed by the
Governor in Council on the nomination of the Minister for Manufacturing and Industry Development, after consultation with the Minister for Planning, and one councillor appointed by each municipal council within the Geelong region. Of the five Governor-in-Council appointees, one was appointed as full-time chairman for a period not exceeding 5 years, and others were part time for a period not exceeding 3 years.

The GRC’s planning objective was ‘to maintain a strategic and statutory framework for the beneficial economic, environmental and social development, enhancement and conservation of the region’ (Geelong Regional Commission Act 1977). In hindsight this could be viewed as an early approach to what would be now termed a ‘triple bottom line’ approach to land use planning. Much of the GRC’s focus during the late 1970s and 1980s was on regional development and urban planning. The early work of the GRC culminated in the Regional Region Development Strategy for Geelong published in 1988. It had three key components: an urban and township development strategy and regional economic development and human services initiatives. It formed part of the state government economic strategy and comprised a ten-year vision supported by a rolling five-year implementation plan. The Geelong Region Development Strategy defined its purpose as providing: a lead for new investment; a link between regional priorities and Commonwealth-state government programs; and a forum for community interest in the unfolding of the plan (GRC1988a, p.21). Its aim was to deliver an integrated approach to economic development, urban and regional planning and the environment. While promoting and facilitating economic development through innovation, skill development and land assembly, it also sought to implement urban containment policies and coastal and rural land protection strategies.

In parallel with the regional initiatives, the GRC worked closely with the Geelong City Council seeking to revitalise the Geelong central area. It was recognised that, as part of its economic revitalisation, works were required to physically improve the amenity of the environment, and projects such as Geelong — City by the Bay (an urban design improvement program) were initiated. During 1978 a strategy plan for the redevelopment of the Geelong central area was prepared and publicly exhibited. In 1979, the Geelong Central Area Strategy was released as the ‘preferred strategy’ and during 1982 the Victorian Government confirmed this as a project of ‘special significance’. A City by the Bay foreshore development zone was foreshadowed with the land along the edge to be reserved for open space (GRC 1988b, p.1). The result of such actions during the 1970s and 1980s laid the foundations for the later
outcomes along the Geelong waterfront, including the urban design improvements and initiatives such as Deakin University on the waterfront.

The directions of the GRC for the 1990s (as it turned out to be its last) were stated in the GRC 1992–95 Corporate Plan. In relation to urban management, it stated:

A strategic approach to land use on a regional basis is essential to ensure effective and efficient use of land and infrastructure and to protect or enhance the environment. A regional strategic approach provides the basis of the economic, social and environmental development of the region (GRC1992, p.3).

Importantly, the Corporate Plan goes on to stress that a requirement is:

A highly skilled and professional in-house town planning staff with extensive experience in strategic and statutory land use management, with access to external specialists as required and supported by in-house drafting, economic development and research units (GRC 1992, p.15).

But this institutional arrangement was not to last. During 1990, a state government review of local government was conducted and culminated in the Geelong Region Local Government Review December 1990 Consultants Report (Victorian Government 1990). As a result, the Victorian Government on 18 May 1993 established the Greater Geelong Council comprising the former Bellarine Rural City, Corio Shire, Geelong City, Geelong West City, Newtown City, South Barwon City and parts of Bannockburn and Barrabool shires. The creation of the Greater Geelong Council saw the abolition of the Geelong Regional Commission 1977–93 (previously the Geelong Regional Planning Authority 1969–77). The new council was the first of the municipal amalgamations under the Liberal–National Party state government.

Almost 10 years after the abolition of the Geelong Regional Commission and a decade of conservative government, with emphasis on planning efficiency and competitive local governance, the local councils of the Geelong region began to search for an institutional arrangement that could provide better regional coordination. The region was experiencing significant physical development but with variable outcomes (economic, social and environmental) and a desire was expressed at a community meeting for a more regional approach to planning in the broadest sense. On 28 February 2002 a community forum was held at the National Wool Museum in Geelong with sixty community and business leaders present, where it was resolved to commit to a regional approach to the planning of the Geelong region. This culminated in the establishment once again of a regional organisation,
the G21 Geelong Region Alliance, a government, community and business collaboration. This is discussed in detail in Section 5.1.5.

The above outline provides some insight into the process of developing a more regional approach to urban and environmental management in a coastal region. ICM is concerned with horizontal and vertical integration of policy. It is suggested that a significant strength of the Geelong Regional Commission was its ability to connect regional economic development with urban management and environmental protection. It had a clearly defined purpose supported by a representative board and a skilled organization. It delivered regional strategies supported by structure plans for the townships. Its legislation gave it ‘teeth’ and its ability to attract significant federal and state funding meant it could deliver its policies. The inherent value of a regional organisation with a capacity to draw the ‘threads together’ through well considered and supported submissions and attract federal funds should not be underestimated. The contribution of regionalism in a federation in relation to coastal management is further explored in Chapter 6.

5.1.3 The Coastal environment

The coastal environment of Geelong region is environmentally diverse and includes Port Phillip Bay, the marine parks and sanctuaries and the Bass Strait coastline. It is a major tourist destination with an increasing permanent resident population (discussed in Section 5.1.4). The region includes the Ramsar (United Nations Convention on Wetlands) site on Port Phillip Bay-Western Shoreline and Bellarine Peninsula, national parks (including the new Great Otway National Park), marine parks and sanctuaries (Point Danger Marine Sanctuary, Barwon Bluff Marine Sanctuary, Point Addis Marine National Park, Eagle Rock Marine Sanctuary, Marengo Reefs Marine Sanctuary). A great attraction for the region is the coastal environment with magnificent beaches, the famous Great Ocean Road and several coastal townships providing permanent and tourist accommodation. The immediate coastal environment is predominantly in public ownership and managed by the councils or coastal committees of management appointed by the Minister for the Environment and Climate Change (see Appendix 2). Parks Victoria is also a major owner and manager of the coastline.

The Indigenous and cultural heritage is also very significant. Indigenous people have lived in this region for approximately 25,000 years, the major Indigenous group being the Wada
Wurrung (City of Geelong to Surf Coast) and to a smaller extent the Gadabanud tribe (Surf Coast to Cape Otway) (Map 5.2).

Map 5.2  Lands of the Wada Wurrung

As with the Gippsland region the early interaction with white settlers involved massacres and dispossession. A detailed account of this history is found in Clark (1995). Indigenous heritage and engagement in ICM and urban planning is presently supported by the Greater Geelong Council and the Geelong Regional Alliance (G21 2009b). The Greater Geelong Council has established an Aboriginal Cultural Heritage Management and Protection Development Planning Protocol 2002. The protocol ‘considers that without limiting the generality, developers, owners and Government instrumentalities on both private and public land will be required to commission an Aboriginal heritage impact assessment study for development applications that may result in places, sites or objects having significance in Aboriginal cultural heritage being disturbed or that will have a potential impact on known Aboriginal sites or areas of sensitivity’ (Greater Geelong Council 2002, p.2). This is significant step forward and in 2002 was one of the first agreements of this kind at the local level in Victoria.

The significant environmental threats to the Geelong region coast include the rate of coastal urban and tourist development and the potential impact of sea level rise and storm surge from climate change (see below). The Victorian Commissioner for the Environment has identified the area between Geelong and Lorne as particularly affected by ‘significant urban growth’ (CES 2008c, p.440), discussed later. The other key environmental pressure is from tourism and visitation activity particularly, with the sudden summer fluctuations of population resulting in litter and coastal erosion. For example, Torquay’s population is estimated to
double during weekends over the summer peak (CES 2008c, p.439). The coastal ports will also need to be managed carefully to minimise future environmental impact. In response, the Geelong Port Structure Plan 2007 to guide surrounding land use activity was adopted by the Geelong City Council on 23 October 2007, including the Corio Coastal Action Plan 2005 and state and local environment and planning policy.

In summary, the coastal environment of the Geelong region is subject to many pressures, the impacts of which need to be managed. To gain an appreciation of these pressures, the coastal and land use activity in this region is described below.

5.1.4 Coastal and land use activity

The Geelong region contains a wide variety of coastal and land use activity. The coastal city of Geelong, the coastal urban centres, the coast townships of Queenscliff, Ocean Grove, Torquay, Lorne and Apollo Bay make for a diverse coastal settlement pattern. Overall the region is experiencing steady population growth, urban development and tourism activity (Figure 5.2). The Geelong Region Plan 2007 predicts an increase of regional population from 270,000 to between 400,000 and 500,000 by 2051 (G21 2007, p.10). The major urban growth is occurring along the coast and areas closer to metropolitan Melbourne (Map 5.3). There is also pressure for urban development along the Great Ocean Road but there are planning and environmental constraints in place limiting growth, discussed in Section 5.2.

In relation to residential development, the Geelong Region Plan estimates the need for 57,000 new dwellings to accommodate an increase of 130,000 by 2051, requiring 7,500 hectares of residential land. During 2007, there was 6300 hectares of ‘identifiable residential land (G21 2007, p.33). This estimated shortfall of residential land is exacerbated by the region’s demographic change towards an ageing population when it is estimated that ‘by 2050, 85% of dwellings will house only one or two people’ (G21 2007, p.33).

The characteristic of non-metropolitan coastal urban growth in Australia has been researched by the National Sea Change Taskforce (discussed in Section 2.4.2). Using the typology developed by Gurran et al., the Geelong region would be classified as containing a coastal city (Geelong) and coastal getaways (e.g. Apollo Bay, Lorne). It could be argued that parts of the Geelong region could also be categorised as ‘coastal commuters’ but in reviewing the definition this is more concerned with peri urban suburbs such as the Mornington Peninsula and Bass Coast (Gurran et al. 2005, p.3).
In coastal cities such as the City of Greater Geelong, the National Sea Change Taskforce research found that there was a higher than median age than Australia overall, higher unemployment, a dependence on retail activity as an employer and lower median household incomes (Gurran et al 2005, p.5). Some of these urban characteristics can be found in the City of Greater Geelong which has an ageing population and a higher than state and national average unemployment rate. The Geelong key economic indicators show that, in April 2009, the unemployment rate for the Barwon Western District is 1.2 points higher than the
Victorian unemployment rate (5.9%) and 1.7 points higher than the unemployment rate for Australia (5.4’). However, it should noted that the indicators also show that ‘a twelve month average of the unemployment rate to April 2009 for the Barwon Western District is 4.6% compared to 4.8% for Victoria’ (Greater Geelong Council 2009a, p.2). The economic base of the Geelong region is more diverse than some other coastal cities with the second major port in Victoria making Geelong also a hub of industrial and commercial activity.

The remaining part of the Geelong region is more in the category of ‘coastal getaways’, defined as ‘local government areas comprising of small to medium towns within approximately three hours drive of a capital city’ (Gurran et al. 2005 p.4). This includes coastal townships and villages within the shires of Surf Coast and Colac Otway. As noted above in Map 5.3, these areas are experiencing significant residential growth. The opening of the new Geelong bypass during 2008 has also reduced commuter travel time, potentially placing even more growth pressure on these ‘getaways’.

The industrial activity of ‘Port Geelong’ is a special characteristic of the City of Geelong. Surrounding the port are oil refineries and related industry, agricultural trade facilities including major transport infrastructure and a growing marine-related industry being promoted by the Greater Geelong Council. The Queenscliff Harbour is different, being smaller and recently refurbished by Parks Victoria as a tourism destination. These ports bring diversity to the coastal experience in the Geelong region.

Tourism is also a key coastal and land use activity. The region hosts many tourist resorts, golf courses and conference centres in coastal locations. The region contains nationally recognised natural assets including the Great Ocean Road, Bells Beach, Surf Coast and Queenscliff, to name a few. Tourism demand has declined nationally since 2000. This is due to six contributing factors identified by Tourism Victoria (2009, p.5): ‘global financial crisis, exchange rate volatility, stagnant domestic tourism sector, changing consumption patterns (decline in discretionary spending), climate change (increased environmental awareness) and drought and other crises’ such as bushfires. Despite this downturn, the Great Ocean Road region ‘retains its position as the most popular on the coast’ (CES 2008c, p.439). The challenge of urban planning and ICM is planning and managing the sudden influx of population during peak holiday periods. A key issue is the lack of data collection that can provide the basis for an argument to government bodies for appropriate resources to meet the demands of high visitation over short periods. This would require effectively a ‘summer’
census by the ABS in popular coastal areas. The National Sea Change Taskforce representing coastal councils and discussed in Chapter 2 is considering strategies to respond to this major issue (National Sea Change Taskforce 2009).

In relation to the immediate coastal environment, there has been significant investment in the natural environment. The region comprises wetlands, rivers, coastal bushland, magnificent beaches and unique marine life. It is part of the south coast of Australia that ‘is the only major south facing coast in the world and has been isolated for approximately sixty five million years’ (VCC 2008, p.10). Over the ten years there has been the creation of marine parks and sanctuaries, the development of coastal action plans, investment in Queenscliff Harbour and detailed structure plans and design guidelines for coastal development (Greater Geelong Council 2009b, ibid 2009c, Parks Victoria 2009c, CCB 2009a). Collectively these actions have facilitated more environmental protection for the key natural assets in the region. This range of plans and actions is discussed in Section 5.2.

In summary the Geelong region has been experiencing gradual growth with higher rates of growth in particular townships predominantly on the coast. There is a significant forecast of population growth to 2051 and consequent demand for residential land. The overall population is ageing and while the economic base is diverse there is a slightly higher unemployment rate than the state average. Tourism is a major economic activity that is experiencing a current decline due to wider economic trends. The Geelong Region Plan 2007 estimates that an increase in urban growth will place pressure on the unsewered residential coastal areas remaining, creating a potential threat to the estuarine, coastal and marine environments (G21 2007, p.36). The coastal and land use activity described above will require effective coastal governance arrangements to minimise adverse impacts on the coastal environments. These coastal governance arrangements are discussed below.

5.1.5 Coastal governance arrangements

The current coastal governance arrangements in the Geelong region are similar to those in the other parts of the Victorian coast. The Victorian Coastal Council and the two regional coastal boards (Central and Western) provide coastal advice for the region to the Victorian Minister for Environment and Climate Change. The major four local coastal councils of Geelong, Queenscliffe, Surf Coast and Colac Otway have their own planning schemes and local coastal management foreshore committee arrangements. There are also the relevant catchment
authorities, water bodies and Parks Victoria managing public lands and marine parks in the region.

The difference in Geelong is the recent establishment of the regional governance organisation, the Geelong Region Alliance, G21. This, as noted above, is an alliance of five neighbouring councils, community and business agencies forming ‘one region with one vision’. G21 developed from an initial gathering of interests committed to the establishment of a company limited by guarantee supported by a constitution, a board charter and a memorandum of understanding. All five councils have members and the organisation receives support and funding from both the state and federal governments. The G21 Region Alliance is unique, with the combination of local and state involvement together with business and community representation. The first meeting was held on 24 June 2005. The present membership includes the municipalities of Colac Otway, Golden Plains, Greater Geelong, Queenscliffe and Surf Coast, the Victorian Government and over one hundred community and business organisations (G21 2009b).

The G21 represents a different approach to regional governance based on collaboration and in 2005, received the federal award for local government in the category of Innovation in Regional Development. G21 released the Geelong Region Plan outlining a vision to 2050 (G21 2007). Coastal planning and management is a key component of this strategy, discussed in detail under coastal planning frameworks in Section 5.3. The key point here is that the Geelong region has an overarching regional strategic plan developed from the ground up on a voluntary and collaborative basis. The risks involved are that G21 does not have any guaranteed long term funding and lies outside the usual government structures. In other words the outcomes of G21 research and policy development relies on mainstream government and public bodies for implementation. The positive attribute of this is that the widespread regional membership from the Geelong region communities has provided an unusually inclusive input to the development of a regional plan. The effectiveness of such a regional model is discussed in Section 5.3.

There are two other important coastal organisations affecting the Geelong region coast: the Great Ocean Road Coastal Committee (GORCC) and the Great Ocean Road Steering Committee. GORCC is constituted under the Victorian Crown Land Reserves Act with members appointed through public expressions of interest by the Victorian Minister for the Environment and Climate Change. Its charter is to manage foreshore reserves along the Great
Ocean Road from Point Impossible to the Cumberland River. GORCC received the 2009 Victorian Coastal Management Award for its Environment and Land Management Plan, which ‘provides a framework for making management decisions that preserve important environmental values along the coast. It aims to protect the natural and cultural values and ensure that development and recreation activities have minimum adverse impacts’ (GORCC 2009). The role of such coastal committees of management is critical to the environmental protection of the foreshore as recognised by the Victorian Commissioner for the Environment, who recommended:

CES1.4 The State Government should better value and support the Committees of Management responsible for managing coastal Crown land. Review arrangements and level of support for Committees of Management to manage coastal Crown land under the Crown Land (Reserves) Act 1978. At the conclusion of the review, State Government should fund and resource any critical recommendations (CES 2008b, p.46).

The Great Ocean Road Steering Committee is a government body responsible for developing the Great Ocean Road Strategy Plan 2007. The committee comprises representatives of state government and agencies and the five coastal councils from Geelong to Warrnambool. The committee has overseen the development of a sub-regional strategy and its implementation. The strategy has four key directions focussing on environment, access, settlement and prosperity. The committee’s work is monitored by the Department of Planning and Community Development and reported on through an annual report card by the Victorian Minister for Planning. The key contribution of this strategy is the way it connects the coastal and marine management initiatives with the urban spatial planning objectives. The engagement directly by two levels of government has facilitated implementation. The Great Ocean Road Region Strategy is recognised in the state planning policy framework and, as such, given some statutory recognition in local planning decisions, i.e. decision making by planning and responsible authorities should be ‘consistent’ with it. This recognition contributed to the state government’s recent refusal of a significant residential and golf course development ‘Great Ocean Green’ (Madden 2009), discussed below under planning for climate change.

The Port of Geelong located on Port Phillip Bay has a significant role in coastal governance arrangements. The Port of Geelong is the largest regional port in Victoria ‘handling some 11 million tonnes of mainly bulk cargoes and accommodating over 500 ship visits each year’ (VRCA 2009). The Geelong area includes ‘Point Henry Pier, Bulk Grain Pier, Corio Quay,
Lascelles Wharf, Refinery Pier, Point Wilson Explosives Pier (Commonwealth), Cunningham Pier and Graincorp Pier’ (VRCA 2009). The Victorian Regional Channels Authority (VRCA) has control over the channel waters. There is also the Port Land Use Strategy 2003, which outlines the management guidelines for land use on port controlled land and is recognised in Greater Geelong Council land use plans and the G21 regional plan. At the other end of the spectrum is the Queenscliff Harbour, managed by Parks Victoria. This has received major public investments in recent years for redevelopment and is now a recreation boating centre (for example, Couta boats) and docks the Queenscliff–Sorrento ferry that crosses Port Phillip Bay.

Finally and importantly, each of the five local councils of the region has direct governance responsibilities under the Local Government Act 1988 and the Planning and Environment Act 1987. The local councils generally have responsibility to the high water mark and are primarily responsible for regulating coastal and land use activity. However, it should be noted that this is by definition in the local planning scheme and is not consistent along the Victorian coast. This issue of local council responsibility on the coastal edge is subject to one of the recommendations of the VCS (2008, p.40):

- Review coastal planning schemes to determine the need to extend their control into the marine environment for 600 metres to ensure consistency in the area of control along the coast and to improve the integration of catchment and marine planning and management (Action d).

The relationship between decisions by the local councils and the public authorities involved in natural resource management of the coastal areas is a critical component of achieving the integration or the ‘I’ in ICM. The complexity of the regulatory and planning framework is now discussed.

5.2 Current coastal planning framework

The Geelong region comprises a wide range of coastal and land use activity and as such is subject to a similarly wide range of statutes and regulations. The key state legislation affecting the Geelong coastal region was outlined in Chapter 3. The following is a discussion of the major strategic and statutory planning policies that particularly affect the coast of the Geelong region.
The Geelong region has a number of strategic plans and policies covering coastal planning and management. These include urban and regional planning policy, catchment, coastal and marine policy and, in an urban context, infrastructure (transport), tourism and environment policy. Overall, economic and social policy also has significant influence over the level of development activity and pattern of investment. It is beyond the scope of this thesis to cover all these dimensions. However, it is important to recognise that in a major urban centre the threats and impacts on the coastal environment are much wider than covered by specific coastal management and planning policy. The case of the Geelong region highlights this and the implications for ICM are discussed in sections 5.3 and 5.4.

The key urban planning strategies and schemes those for the five municipalities and the G21 Geelong Region Plan 2007. Melbourne 2030, the major metropolitan plan for Melbourne does not directly cover Geelong but is a major influence on the pressures on the region as a result of adjacent designated urban growth areas, the location of the urban growth boundary and major transport infrastructure investment including passenger and freight rail and the Geelong Bypass. All these major urban planning and infrastructure decisions affect the connections between Melbourne and access to the Geelong coastal region. The recent Melbourne @ 5 million report (DPCD 2008) foreshadows an expansion of the urban growth boundary for Melbourne to the west. It forecasts that regional growth of ‘477,000 people between 2006 and 2036 will mainly occur in Geelong, Ballarat, Bendigo, in areas near Melbourne, and in ‘lifestyle’ locations such as the coast, the Alps and along the Murray River’ (DPCD 2008, p.29). This will have direct implications for the future planning of the Geelong coastal region.

The Geelong Region Plan 2007 is the major regional plan for the coast. The plan was the culmination of a comprehensive community engagement process involving ‘35 consultation forums attended by almost 1000 people’ (G21 2007, p.5) and a wide range of stakeholder and expert reference input. The unique governance structure of G21 (described below) provided the basis for an inclusive approach to developing a regional plan. The G21 regional plan has no legislative power but contains statements of commitment by the Premier and signed by the relevant local mayors. The plan is based on a number of ‘pillars’: arts and culture, economic development, education and training, planning and services, health and wellbeing, transport, environment and sport and recreation. These ‘pillars’, based on sectors, are organised around five key themes: protect and enhance our environment, create sustainable settlements, strengthen our communities, refocus our economy, and make it happen (G21 2007, p.3). The coastal environment features strongly in the first direction of the plan:
The coastal and rural areas of the G21 region are the focus of extreme development pressures and tourism use. Without innovative and appropriate management of indigenous vegetation, waterways and rural and coastal spaces, anticipated urban development may lead to further reduction of biodiversity values, agricultural land productivity, water supply and the quality and lifestyle appeal of the region (G21 2007, p.19).

More specifically, in relation to the coast, the plan contains directions for coastal settlement planning and has a strong emphasis on planning for climate change and water resources. It also recognises that rapid urban growth on coastal environments can have economic and social consequences. The plan takes three time horizons: up to 5 years, 5 to 20 years and beyond 20 years. In this way it can tackle the immediate and the longer term challenges. The G21 forecasts discussed earlier (Section 5.1.4) will place pressures on the coastal environment and the associated demand for infrastructure and services. The plan adopts an approach of urban concentration to maximise the benefits of co-location for social and economic activity (range of services) and, if planned in an integrated manner, minimises the environmental footprint and, with that, negative environmental impacts.

In addition to the G21 regional plan, there are major state and local strategies that have statutory effect and importantly the planning schemes that implement state and local planning and environment policies. The key state plans include the Coastal Spaces Strategy (Vic.), the Victorian Coastal Strategy 2008, the Regional Tourism Action Plan 2009–2012, the Great Ocean Road Strategic Plan, and the Management Strategy for Victoria’s Marine Parks and Sanctuaries 2003–2010, with specific management plans for each park. A number of these strategies are discussed in chapters 2, 3 and 4. The Regional Tourism Action Plan pays particular attention to the tourism value of the Great Ocean Road recognising the high economic value of nature-based tourism (Tourism Victoria 2009, p.31; Parks Victoria 2008). The Tourism Plan commits significantly to the Geelong region relative to other regions, including the Great Ocean Walk, a new Great Ocean Road interpretative centre and the Geelong Waterfront precinct. In addition there are the Corangamite and Glenelg Hopkins Catchment Management Plans that relate to the region.

The key local plans include the five councils plans for 2009–2013, required under Section 125 of the Local Government Act 1989. Two relevant coastal plans include the Bellarine Peninsula Strategic Plan managing urban growth of a rapidly growing coastal area and the Borough of Queenscliffe Coastal Plan managing the impacts of tourism. Both have statutory effect and importantly incorporate the policies of the Victorian Coastal Strategy and Coastal...
Spaces. There is not the scope in this thesis to examine in detail every plan in the Geelong region. However, one aspect that requires attention in an urbanised coastal region is the extent to which the coastal policies are implemented through local planning provisions. The municipal strategic statement (MSS), a strategic planning statement required in all Victorian local planning schemes, has provision for a dedicated section on coastal planning to manage the impacts of coastal development. It is through these statements that the intent of the Victorian Coastal Strategy and the Coastal Spaces recommendations can be reflected. At a more detailed level there are local coastal action plans prepared under the *Coastal Management Act 1995* that provide environmental protection for the foreshore and immediate environs. These are prepared under the guidance of the relevant regional coastal board. Examples in the Geelong region include Corio, Geelong Waterfront, Central Western, Central Estuaries and several more specific local plans.

As can be seen from the above discussion there is a large range of strategic plans operating in the Geelong region. The major benefit of the Geelong Region Plan is that it attempts to bring all these policies and plans together in a coherent way to provide a framework for planning in the future. One of the key themes emerging in this thesis is the importance of a set of shared and agreed outcomes. The Geelong Region Plan provides this and, if implemented, has the potential to make a lasting contribution to the environmental protection of the coast. The ‘if’ is discussed below.

5.3 Coastal planning and management issues

The Geelong region is a more complex environment than the other two case studies of the Gippsland Lakes (Chapter 4) and Point Nepean (Chapter 3). The range and intensity of land use together with the pressures from proximity to metropolitan Melbourne create significant multiple coastal management and planning issues. In particular, the Geelong region highlights the issue of coastal urbanisation, regional governance and the challenges of planning for coastal climate change.

5.3.1 Urban growth management

Coastal urbanisation in the Geelong region has been overall one of steady growth over the last ten years. The pressures of coastal urbanisation have been variable within the Geelong region, with those coastal areas with the closest and most direct transport links to metropolitan
Melbourne facing the highest rates of residential development. The Geelong Region Plan highlights the need to provide significant residential land to accommodate projected urban growth to 2051. The consequent social and economic considerations are also emphasised in the regional plan and include an ageing population and a rise in unemployment. The focus of this thesis is on coastal planning and management and cannot in detail cover all the issues associated with rapid urban growth, including the demand for physical and social infrastructure, employment opportunities and maintaining urban character in a rapidly changing environment. However, it is considered that these wider pressures and responses need to be part of a more holistic approach to coastal planning, to better understand the range of pressures that can have a direct or indirect impact on the coastal environment. For example, urban growth pressures driven by the expansion of metropolitan Melbourne could include the negative environmental impact of more ‘unsewered’ urban areas as a result of a backlog in sewerage infrastructure (G21 2007), the loss of coastal vegetation through clearing for development or the impact of a significant increase in visitation and tourism. All these urban issues need to be managed in an integrated way to minimise the environmental impacts on the coast.

The importance of managing urban growth is reflected in the major increase of structure planning for coastal townships in the region over the last five years. Structure plans are a key urban planning tool to provide direction for future growth and development of a township for ten to fifteen years. In the City of Greater Geelong there has been an increasing emphasis on the preparation of new structure plans prepared compared to little activity in the previous five years (Greater Geelong Council 2009b,c). The Geelong structure plans ‘identify the key strategic planning issues facing a township, including community aspirations and needs; define the preferred future directions for a township, including the location of Settlement Boundaries and identify appropriate planning controls which will protect and enhance the distinctive elements of a township, biodiversity and landscape features’ (Greater Geelong Council 2009c). There has also been considerable emphasis on urban design and heritage studies and guidelines (Geelong City Council, Surf Coast, Borough of Queenscliffe). These local plans have provided local detail and implementation of the initial coastal urban boundaries outlined in the Victorian Government’s Coastal Spaces (VCC 2006) and the subsequent Coastal Towns Design Framework Project (DSE 2007) discussed in Section 2.2. The overall Coastal Settlement Framework for the Geelong Region is shown below in Map 5.4, based on the original recommendations of the Coastal Spaces report and adopted in the
VCS 2008 (VCC 2008). The pressures around Geelong are clearly evident with the clustering of urban growth areas.

Map 5.4 Coastal Settlement Framework: Spatial Growth Management (Geelong region)

(Source: VCC 2008, p88)

The Geelong region is experiencing urban growth and tourism pressures as shown in Map 5.4 below. The VCS 2008, the formative work of Coastal Spaces and the statewide coastal urban design framework program (discussed in Chapter 4) are collectively providing an improved policy framework for local coastal planning responses. All these coastal planning policy initiatives have developed in the last five years. The incorporation of the VCS 2008 in the State Planning Policy Framework (SPPF) (Chapter 2, Appendix 3) has provided the opportunity for a stronger policy partnership between local and state government in growing coastal regions. However, as shown in the case below, even with the Victorian coastal planning framework now in place, the intense political pressures that occur with major coastal development proposals can seriously test the coastal planning system.

The Stocklands development ‘Lonsdale Lakes’ is a controversial proposal involving all three levels of government. The initial proposal for ‘Lonsdale Lakes’ in 2004 was for a 1000-lot residential development including a shopping centre, a hotel and a golf course. It is located in
the City of Greater Geelong on the border with the Borough of Queenscliffe and lies adjacent to a significant Ramsar wetland (Swan Bay) triggering the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Not surprisingly, the proposal has generated significant and sustained community opposition. As the Geelong Environment Council President stated: ‘I don't understand the arrogance of developers expecting to change the Geelong planning scheme, which has this land zoned (as) flood land, rural, and has an environmental overlay…migratory birds, which come huge distances from Siberia, use these wetlands’ (Rood & Boulton 2004). The CEO of the immediately adjacent Borough of Queenscliffe, Mr Price, said in *The Age* newspaper, ‘the council's big concern was increased pressure on local infrastructure such as child and health care services and schools. We only have 2700 (houses) within the council, so to have another 1000 on our doorstep . . . will have a significant impact’ (Rood & Boulton 2004). Despite these local concerns the developer has persisted and argued the case through the statutory planning processes and a major environmental impacts assessment process.

The ‘Lonsdale Lakes’ proposal was lodged before the Victorian Coastal Spaces report and the VCS 2008 (discussed in Chapter 2). The VCS 2002 was in place but it did not include the issue of coastal inundation and the potential impacts of climate change. The developer also had the advantage that a portion of the site had received earlier approval for some form of residential development. Five years later, after a long process of negotiation between governments and the developer, a modified proposal is in the process of being approved: a residential subdivision of approximately six hundred lots with ‘integrated waterways, a retirement village, an aged care facility, a multi-purpose community centre, a convenience shop, public open space and habitat land protected for conservation purposes’ (Minister for Planning 2009, p.1). In January 2009, the Minister for Planning gave his qualified support for the modified proposed development by Stocklands (Minister for Planning, p.4). Following this, in August 2009, the federal Minister for the Environment, Peter Garrett, gave his consent under the *Environment Protection and Biodiversity Conservation Act 1999*. Local environment groups have reacted strongly, as the Geelong Environment Council President stated in the local Geelong press:

Council president Joan Lindros said the Government had failed to comply with ‘it's own environmental policies. It's very, very disappointing because we believe the environment minister's main objection (would) be eco-systems, species and the protection of the environment and it seemed a poor decision from our point of view’, she said. They (Federal Government) haven't taken international duties responsibly for migratory bird species. Our major concern is the existing vegetation...
in the waterways. (There's) 32 hectares of very rare aquatic saline meadow for which there is no replacements (Oates 2009).

The developer is now in the process of seeking development approval for specific stages. This is a case with all the elements that can test a coastal planning system. It illustrates the political pressures that occur with significant developments located on the edge of coastal urban centres with multiple jurisdictions and interests involved. It also illustrates that when ‘discretion’ remains in coastal policies (i.e. ‘should’ be considered rather than mandatory application), the system will be tested to the limits, in this case with the environment bearing the cost. It also highlights the difficulties when past development approvals have been granted, as shown earlier with the old and inappropriate subdivisions in the Gippsland Lakes. I would suggest that the case is a good example of where a tripartite agreement with clearly stated outcomes for the coast could provide more guidance for coastal planning decisions.

An unresolved issue remaining for this region is managing the impact of the summer peak population due to population influx during peak periods. As discussed earlier, this can be significant in the Geelong region. The planning and management of tourism and recreation services including the capacity of local infrastructure requires appropriate coastal planning and management policies to protect the coastal environment from human impact (e.g. untreated waste, overuse). As previously discussed, this issue is being championed by the National Sea Change Taskforce that includes representation from local government in the Geelong region. There is not the scope in this thesis to deal with the very large topic of coastal tourism. However, it is recognised as a major issue and is referred again to in the conclusions (Chapter 7). Similarly, the increasing population and residential development disguises some key social and economic issues identified in the Geelong Region Plan. These include education and health levels lower than average state level and ‘there is significant community social disadvantage and a large gap between rich and poor’ within the region (G21 2007, p.10). It is important to recognise that coastal urban growth can have a significant social and economic impact that needs to be considered in any regional plan. In this respect, sustainable development requires consideration of social, economic and environmental factors.

5.3.2 Regional governance

Regional governance is a long term issue for the Geelong region. The brief history provided in Section 5.1.2 above describes the various iterations of regional governance that have been developed to help guide the future development of the Geelong region. Coastal planning and
management has been a critical part of this. In a written speech that I delivered in response to the ALP National Discussion Paper on Urban Development, Housing and Local Government 2006, I emphasised four areas requiring further consideration in managing urban growth in Australia: the national economic imperative to have our cities functioning efficiently; Commonwealth land in delivering sustainable outcomes; regional planning in areas under development pressure; and healthy cities including urban design, open space and accessibility. I referred to G21 as a model for regional governance that should be supported over time (Norman 2006b). In reviewing the G21 initiative, I suggest that it has three significant attributes. Firstly, a distinctive attribute of the G21 model is the voluntary nature of membership based on collaboration between government, non-government bodies, business and community. The second attribute is the shared and agreed objectives and outcomes by multiple voting stakeholders as expressed in the Geelong Region Plan. This is described by G21 as ‘an Alliance’ that is ‘a collaborative voice for the region’ that ‘provides an alignment of the objectives of major regional organizations with those for the sustainability of the region’ (G21 2007, p.5). The stated shared vision is:

The Geelong region is Australia’s most desirable destination for living, visiting, working and investing; it is renowned for its vibrant, cohesive community, exceptional physical environment and vigorous economy (G21 2007, p.5).

The benefit of a shared vision or outcome was reinforced in the central coast focus group, with one participant stating that ‘the community would understand a heck of lot more if indeed they could see what the outcomes that people were trying to achieve at all levels of government and those levels of government and that included the community were bound by those’ (Neil Beddoe, 2007, central coast focus group timed at 57 minutes). This raises the issue of connecting the vision to implementation with some of the governance issues.

The third feature is that it has a unique and innovative structure, shown in Figure 5.3. The challenge for the G21 model is that despite its collaborative membership, it does not have a sustainable long term financial model or any implementation powers. It relies on short term funding from a range of government sources. In other words there is no sustainable funding basis for the regional initiative. This provides a very tenuous future reliant on annual commitments by the participating local councils and project grants by state and federal governments.
Figure 5.3 The regional governance structure for G21

(Source: G21 2009b, Regional Governance Model)

During 2007, the Victorian Government established an interdepartmental committee to facilitate implementation of the priority projects in the plan. This is public recognition of the G21 Region Plan and a step towards government coordination for the region. The key coastal projects include the further development of coastal trails particularly the Great Ocean Walk, a climate change impact management program and a harbour and marina network involving investment in the small harbours in the region. The requests for funding from the state government have been met with sympathy but to date little financial commitment (G21 2009c). As one participant mentioned in the central region focus group, ‘it is cheaper to develop policy rather than implement it, so seen to be doing something’ (Johnstone 2007, central coast focus group at 31 minutes). There is nevertheless some recognition of the G21 effort by the state government’s identifying key personnel to engage directly with G21. However, the issue remains that this major collaborative regional initiative in a growing coastal urban coastal region is operating with limited funding with no guaranteed long term future. The issue therefore remains as to what regional governance could be sustained in such a coastal region? This will be discussed in Chapter 6.

5.3.3 Planning for climate change

Planning for climate change is the major emerging issue. The VCS 2008 included climate change for the first time as one of three key issues: climate change, population and growth, and marine ecological integrity (Chapter 2). The Future Coasts program of the Victorian Government has undertaken some initial bathymetric modelling for the whole Victorian coast
including the Geelong region (DSE 2009a). It indicates that significant coastal areas will be subject to coastal inundation if sea level rise is up to one metre and even more between one and two metres, including coastal areas in the Geelong region. As discussed earlier in this chapter and in Chapter 2, the VCS 2008 has adopted a sea level rise by 2100 of ‘not less than 0.8 metre’. In June 2009, an expert committee was established to advise the Victorian Government on how to incorporate climate change more fully into the Victorian planning policy framework. This committee is expected to report in eighteen months.

Overall, the VCS 2008, the climate change policy statements and the more detailed statutory provisions collectively demonstrate a significant effort to address coastal climate change in Victoria. For example, the Victorian Minister for Planning, Justin Madden, recently rejected a proposal for a golfing estate of more than 500 residential lots for the Geelong regional coastal township of Apollo Bay. The rejection of the proposed ‘Great Ocean Green’ residential and golf course resort development was based on the VCS 2008 and local and regional planning studies by the Great Ocean Road Committee and the local council (Madden 2009), specifically ‘the substantial risk of flooding and the excessive scale of engineering works required for a residential development in this sensitive location, outweighs the potential benefits of the proposal’ (Madden 2009). However, more needs to happen to translate climate change considerations to the local level. Of the five municipalities of the Geelong region, only Colac Otway has an MSS that refers to climate change. Furthermore, in a review of Victorian coastal MSSs it was concluded that ‘according to local government employees themselves, no sense of urgency has filtered down to the statutory level of planning in recent years, and only guidance by the state will ensure this happens in a consistent manner in the future’ (Vasey-Ellis 2009, p.167).

The Geelong region has not had the benefit of the regional CSIRO assessment undertaken for the Gippsland Lakes. As discussed earlier, this region is covered by two coastal boards and in many ways suffers from being on the edge of the boundaries of both, that is, somewhere between metropolitan Melbourne and the west coast. Neither coastal board has initiated climate change research, being more focussed in the last few years on coastal settlement and urban growth management. In the Geelong region, the process is largely still at a mapping level and at a very early stage of consideration in relation to planning. Given the intensity of coastal and land use described above, the projected population and development pressures and the role of ports in the region, this climate change research remains an urgent unmet need for coastal planning in the Geelong region. The contribution of a regional understanding of the
impacts of climate change was discussed in Chapter 2 (Sydney coastal councils, Western Port) and is again addressed in Chapter 6 in relation to the future implications of climate change for ICM.

5.4 Implications for the theory and practice of ICM

The case study of the Geelong region raises a number of implications for integrated coastal management. The extent of the region, its mixed land use and coastal environments (bay, ocean, ports) and its close proximity to expanding metropolitan Melbourne provides a complexity that tests the theory and practice of ICM. In this respect, the discussions above highlight three particular areas of interest. These include managing non-metropolitan coastal urban growth, regional governance and planning for coastal climate change.

As discussed in Chapter 2, the theory and practice of ICM has underpinned the approach to coastal management in Victoria. The recent developments of the VCS 2008, the Coastal Spaces project and the consequent statutory incorporation of the coastal planning principles and sea level rise provisions in the state planning system has resulted in more tangible connections between the objectives of ICM, state planning policies and local planning schemes. How all this translates into local action is the crucial point. As one participant in the central focus group remarked:

“We miss the point, do the academic policy reviews but people who have to implement it, all they have got is the local planning scheme and if it’s not in there they don’t apply it (Neil Beddoe 2007, central coast focus group timed at 14.58 minutes).

It is too early to judge how this will take effect at the local level but the building blocks are there to develop a pathway to a more sustainable approach to coastal planning in the Geelong region. The grassroots development of a more regional integrated approach to regional planning that recognises the wider influences and consequences of socio-economic activity and its connection to environmental protection adds an important coordinating framework and agreed vision for the region. The future planning for climate change will add another important dimension to the matrix of considerations.

The discussions above on the Geelong region case study (the history, the governance, the coastal and land use activity and approach to planning) have raised a number of implications for the future of ICM. In particular it is suggested that the Geelong region case study has highlighted the following implications for the theory and practice of ICM:
i. The presence of state coastal policy and a regional plan is assisting the coastal City of Greater Geelong and the region’s local councils by providing agreed strategic coastal planning direction by all local councils and supported by the state government. While at an early stage, recent evidence illustrated by the decision on the Apollo Bay subdivision discussed above, indicates the Minister for Planning is beginning to consider the VCS 2008 and local strategic plans in decisions affecting the Geelong region coastal environment. However, the Lonsdale Lakes development proposal highlights the fragility of the coastal planning system when placed under considerable political pressures. Ongoing monitoring of outcomes as raised earlier by the Victorian Commissioner for Environment Sustainability will be necessary to really make an assessment of the effectiveness of these policies in the longer term. These issues are taken up again in Chapter 6.

ii. Regional governance and planning has persisted in the Geelong region over 30 years (an authority, a commission, an ‘alliance’) and is increasingly incorporating ICM into regional planning as a strategic direction in the Geelong Region Plan 2007, discussed earlier. The re-emergence of a regional approach is a persistent theme arising in this thesis illustrated in the Gippsland case study, the biosphere concept surrounding Point Nepean and again in the Geelong region. Chapter 2 also highlighted the regional approaches developed for the Sydney coastal councils, South East Queensland and Western Port Bay in Victoria. Any future approach to ICM needs to recognise this groundswell search for new mechanisms for improved regional collaboration. The gap in the ICM system is that, while the regional coastal boards in Victoria are certainly a good start, they lack the link between strategic and statutory powers to effect implementation of regional coastal plans.

iii. Planning for coastal climate change is only at a formative stage in the more highly urbanised region of Geelong and needs to be supported by regional climate change scientific assessment (e.g. as in the three-year Gippsland Lakes CSIRO research program). Compared to the Gippsland Lakes region, there is a conspicuous lack of data and knowledge for a major coastal region adjacent to a capital city. This highlights the lack of a strategic approach to research for priority urban settlement along the coast. The one-off research programs are excellent but do not provide the evidence for a strategic approach to coastal climate change. Again this issue is taken up in Chapter 6.
iv. An understanding of the wider social and economic pressures affecting a coastal city in proximity to a metropolitan area can provide the basis for a more integrated approach to coastal planning beyond the immediate foreshore environment. As discussed earlier, the urban growth of the Geelong region discussed is the product of the coastal environment alone but the product of wider growth pressures and the planning directions of Melbourne 2030. The considerable state government investment in the Geelong bypass, increasing accessibility and visitation to the regional coast, is another example of major infrastructure decisions affecting growth pressures in the Geelong region.

v. Within a region such as Geelong, there can be significant internal variation, such as growth rates for different coastal settlements, and state and regional planning and coastal policy should be cognisant of this fact. The contribution of community engagement, as illustrated in all three case studies, is that it provides the very necessary balance between top-down policy directions and local values and coastal character. Within a region there will be variation that needs to be understood and respected in any new coastal governance approach to ICM.

The Geelong region is the third case study in this thesis. It represents an urbanising coastal region adjacent to the metropolitan area. The case study complements the rural regional study of the Gippsland Lakes (Chapter 4) and the coastal headland of Point Nepean (Chapter 3). The three case studies collectively seek to answer research questions 2 and 3 from a range of perspectives. Chapter 6 seeks to bring together the academic literature and international practice in Chapter 2 and the evidence from the local case studies in chapters 3, 4 and 5 to better understand the limitations of ICM, the impediments to implementation and the opportunities for advancing the theory of ICM towards a more sustainable approach to coastal planning.
6. From ICM to sustainable coastal planning

6.1 Introduction

The theory and practice of integrated coastal management has underpinned coastal management in Australia for over 30 years (Chapter 2). This thesis is a critique of ICM from an urban planning perspective (Chapter 1). It recognises the significant statutory processes but is not a detailed statutory analysis of ICM or urban and regional planning. Its primary focus is strategic coastal planning and management and the implications for ICM and coastal governance. Within this scope, it is hoped the research findings and discussions make an intellectual contribution to the theory and practice of ICM, towards a more sustainable approach to coastal planning. As stated in Chapter 1, the five research questions for this thesis are:

1) What is the current state of knowledge and academic debate on integrated coastal management and coastal planning?
2) What are the gaps in the theory of ICM and the disjuncture between theory and practice in coastal planning? Why is this significant?
3) What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change?
4) How do the research outcomes contribute to the advancement of the theory of ICM and the practice of coastal planning?
5) What key principles could frame a more sustainable approach to coastal planning in Victoria and more generally in Australia?

Chapter 6 provides the opportunity to bring together the research findings of this thesis and analyse and discuss what this means for ICM in the future. The issues identified by the focus groups referred to throughout the thesis are further explored in section 6.1.3. Chapter 6 thus answers research questions 4 and 5. Chapter 6 is divided into four sections:

i. An introduction that restates the five research questions for the thesis, the structure, the focus group questions, the key definitions for coastal management and the approach to Chapter 6

ii. A discussion that draws together the research findings on the key pressures, impacts and issues on the coastal environment in Victoria
iii. Drawing on the above, identification of the major impediments for change and the opportunities for improved environmental outcomes for coastal planning and management with elements that could provide the basis of a transition from ICM towards more sustainable coastal planning for more sustainable coastal planning.

iv. A discussion of what the research findings could mean for coastal governance, including some key conclusions on the future of the theory and practice of ICM in Victoria and Australia.

The following discussion will examine the findings of research in chapters 2, 3, 4 and 5 and the implications for ICM. It outlines the case for moving towards a more adaptive and outcome oriented framework for coastal planning and management. At the core of this argument is better integration of coastal management with the urban and regional planning system. Also at the core is that integration alone will not deliver better outcomes. An agreed and shared understanding of outcomes is necessary to move towards improved coastal planning and management. As explained in this chapter, this will involve a more adaptive approach, strategic regional planning (e.g. a coastal regional land use strategy) and a more regional approach to coastal governance (e.g. an integrated coastal planning body). It will also involve the coastal communities and the active engagement and commitment of all three levels of government (national, state and local).

At this point it is important to restate the definitions of integrated coastal management (Chapter 1) and sustainable coastal planning (Chapter 2) as used in this thesis:

**Definitions of ICM**

The integrated planning and management of coastal resources and environments in a manner that is based on the physical, socio-economic and political interconnections both within and among the dynamic coastal systems, which, when aggregated together define a coastal zone. An integrated approach requires both the horizontal (cross-sectoral) and vertical (the levels of government and non-government organizations) coordination of those stakeholders whose actions significantly influence the quantity or quality of coastal resources and environments (Sorensen 1997 p.9).

A framework that attempts to integrate planning and management in a region, such as the State of Victoria, across the land and sea interface and the private and public land interface, to treat the coastal zone (which includes the catchment) as one biophysical entity (VCC 2008, p.74).
A proposed definition for sustainable coastal planning was advanced:

| An integrated and adaptive systems approach to coastal planning that leads to long term improved environmental outcomes for the coastal zone. The core elements are integration, adaptation, systems, long term, outcome oriented, regional, communities and a broadly defined inclusive coastal zone |

In reviewing the definitions above, the key words that distinguish the ICM definitions from sustainable coastal planning (SCP) include outcomes, communities, adaptation, a regional approach and the long term. Chapter 6 will seek to explain the basis of the move to sustainable coastal planning as defined above and why it could lead to an enhanced theory of ICM and better environmental outcomes for the coast.

6.2 The research findings

The section brings together the key research findings of chapters 3, 4, and 5 on coastal pressures, impacts and major issues affecting the Victorian coastal environment. This provides the foundation for later discussions of the implications and coastal governance in 6.3 and 6.4.

6.2.1 Coastal pressures

The research in this thesis commenced with a focus on the twin pressures of urbanisation and the potential impacts of climate change (Figure 6.1). These themes have remained as the two primary areas for investigation. However, during the research, two related issues have emerged in the case studies and focus group discussions: the need for meaningful community involvement and the pressure to recognise and include Indigenous and cultural coastal interests. These pressures have implications for coastal management, planning and governance, as will be discussed in section 6.2. The following draws out the key findings from the research in relation to pressures.

There are already significant pressures on the coastal environment. The national State of the Environment reports and the more recent Victorian State of the Environment report confirm that the pressures of coastal development are increasing. The three case studies and the two focus groups highlighted the following: coastal urbanisation driven by demographic and social change (Geelong region); climate change on the Victorian coast with predicted sea level rise, storm surge, less rainfall and higher temperatures (Gippsland and Geelong regions) (CES 2008a,b); new coastal land uses including desalination plants and wind farms.
(Gippsland); a consequent demand for improved community involvement in future coastal planning (Geelong, Gippsland, Point Nepean), and as part of that a demand for increased involvement of Indigenous people in the decisions affecting Indigenous and cultural coastal heritage (Point Nepean, Gippsland, Geelong).

Figure 6.1 The Bellarine Peninsula in the Geelong region

![The Bellarine Peninsula in the Geelong region](image)

David Tatnall 2009

To elaborate, the pressures for coastal urbanisation are demonstrated in all three case studies. The Geelong region faces the greatest pressure with its proximity to Melbourne, Point Nepean a close second, and the Gippsland region beginning to experience a changing coastal landscape. In this way the three case studies demonstrate the incremental process of urbanisation, beginning with coastal villages such as Paynesville in Gippsland to the City of Greater Geelong. In many ways the real challenge is to find a mechanism that will stimulate early action by government to plan for future urban growth in coastal regions such as Gippsland, rather than reacting once problems become apparent and too costly to solve. The emerging pressures for coastal development are evident but the response still formative. Establishing a strategic planning framework for the Gippsland region for the next 20 years requires foresight and potentially a new method/system of coastal governance. This coastal governance and planning dilemma is discussed further under coastal governance in Section 6.5.

While the pressures for coastal development have been on us for sometime, the projected impacts of climate change and emerging new land uses are adding to the threats. The impact of offshore mining is also having an impact, a recent example in Australia being the oil spill
by the Atlas rig off the Western Australian coastline (ABC News 2009). The scope of this thesis has not provided for the addressing of these issues in detail but they require some mention and were partly raised in the focus groups (CD 2007, rear cover). These include responses to climate change and urban growth such as the development of alternative energy and water resources in the form of desalination plants and wind farms. Already there have been contested decisions on the Victorian coast in relation to both of these activities. Examples in the Gippsland region include the construction of the Wonthaggi desalination plant 2008–9 (Your Water Your Say 2009) and the earlier 2006 proposed Bald Hills wind farm in Tarwin Lowe, South Gippsland (Australian Parliament, 2006, p.14). Both required and received approval by the state and federal governments under the Environment Protection and Biodiversity Conservation Act 1999. Table 6.1 shows the details of the approved operating wind farms already in Victoria, with the majority on the coastline.

<table>
<thead>
<tr>
<th>Wind farm</th>
<th>Operator</th>
<th>Commissioned</th>
<th>Number of generators</th>
<th>Maximum power (MW)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Wind Energy Project (Cape Bridgewater Stage 2)</td>
<td>Pacific Hydro</td>
<td>September/October 2008</td>
<td>29</td>
<td>58</td>
<td>Coastal</td>
</tr>
<tr>
<td>Challicum Hills</td>
<td>Pacific Hydro</td>
<td>August 2003</td>
<td>35</td>
<td>52.5</td>
<td>Inland (15 km east of Ararat)</td>
</tr>
<tr>
<td>Codrington</td>
<td>Pacific Hydro</td>
<td>2001</td>
<td>14</td>
<td>18.2</td>
<td>Coastal (25 km west of Port Fairy)</td>
</tr>
<tr>
<td>Portland Wind Energy Facility - Yambuk (Stage1)</td>
<td>Pacific Hydro</td>
<td>2007</td>
<td>20</td>
<td>30</td>
<td>Coastal 20 km west of Port Fairy</td>
</tr>
<tr>
<td>Toora</td>
<td>Transfield Services</td>
<td>2002</td>
<td>12</td>
<td>21</td>
<td>Coastal</td>
</tr>
<tr>
<td>Wonthaggi</td>
<td>Wind Power now bought by Origin Energy</td>
<td>2005</td>
<td>6</td>
<td>12</td>
<td>Coastal 3 km from Wonthaggi</td>
</tr>
<tr>
<td>Portland Wind Energy Project (Cape Nelson South Stage 3)</td>
<td>Pacific Hydro</td>
<td>2009</td>
<td>22</td>
<td>44</td>
<td>Coastal</td>
</tr>
<tr>
<td>Waubra</td>
<td>Acciona Energy</td>
<td>2009</td>
<td>128</td>
<td>192</td>
<td>Inland 35 km north west of Ballarat</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>427.7 MW</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Department of Primary Industries 2009)

A significant number of new wind farms proposed for the coast have environmental implications for coastal landscapes (DPI 2009). The desalination plant for Wonthaggi has attracted intense community opposition and a long running media campaign. 'Surfing
advocate John Gemmill of the Bass Coast board riders said he felt he was living under a "totalitarian" Government, but vowed the fight would continue, saying: "They (the Government) are not fit to call themselves human" (The Age 2009a).

Coastal pressures such as these will only increase with coastal urbanisation and climate change, resulting in a cumulative impact on the coastal environment. Understanding the impact of existing and emerging coastal pressures will require improved connections between the relevant science and urban and regional planning processes (strategic plans, urban planning schemes, local planning guidelines). As concluded in Chapter 4, ‘the science is not enough’. Improved knowledge of the connections between the pressures, the impacts and the decision making processes in urban and regional planning will be critical to finding long term sustainable solutions.

6.2.2 Coastal impacts

The pressures identified above are having a cumulative impact on the Victorian coast. As discussed in Chapter 2, the Victorian State of the Environment report made a number of findings on the coastal environment. These included:

i. The population of coastal Victoria is growing faster than the state average in areas close to Melbourne

ii. Extensive modification of vegetation and estuaries has occurred, with land within or close to large coastal settlements most affected

iii. While the coast has undergone significant modification from its natural state, it remains difficult to determine the condition and trends of the coastal environment due to a lack of consistent and reliable data

iv. Climate change will have serious implications for the coastal environment and coastal communities (CES 2008a, p.46).

These impacts were also highlighted in the case studies (Geelong, Gippsland, Point Nepean) and raised in the focus group discussions (CD 2007, rear cover). While the Victorian Commissioner for Environmental Sustainability found it difficult to reach conclusions on impact, the more specific case studies in this thesis provide evidence of coastal deterioration. This includes the state of the Gippsland Lakes (Chapter 4) and the impact of coastal development in the Geelong region (Chapter 5). The extensive investment being made to restore Point Nepean is a tangible example of the environmental impact over time on a coastal
headland used for defence purposes. The cost of decommissioning unexploded ordinances and the restoration of Indigenous heritage will require a concerted and well-resourced commitment.

The conclusions of both the Victorian Commissioner for Environmental Sustainability in the State of the Environment report 2008 and the three case studies point to the need to undertake more longitudinal research to gather evidence of change over the long term. Environmental impact on the Victorian coast has occurred despite a unique legacy of public land frontage to 96 per cent of the Victorian coast. Some recent public policy interventions such as Coastal Spaces 2006 and the Victorian Coastal Strategy 2008 (Chapter 2) provide the basis for improved environmental protection of the Victorian coast. A possible reason for a continuing disjuncture between policy and outcomes is discussed in section 6.3 and 6.4.

6.2.3 Coastal issues

In reviewing the evidence and discussions in chapters 2, 3, 4 and 5, the list of current and potential coastal issues is extensive, certainly enough for a long term research agenda. Furthermore there are looming major issues that are recognised as very important but beyond the scope of this thesis, e.g. the consequences of water shortages and acid sulfate soils (DSE 2009b), both affecting the Gippsland Lakes. Table 6.2 summarises the key the pressures and impacts discussed above arising from this research and the coastal planning and management issues that are affecting the Victorian coastal environment. The issues identified are drawn from the review of ICM in Chapter 2 and the three case studies of chapters 3, 4 and 5 including the discussions of the two focus groups in the central and Gippsland regions of Victoria (CD 2007, rear cover). Further discussion later in this chapter provides a deeper understanding of some of the complexities of coastal governance (Adger & Jordan 2009, Milligan & O’Riordon 2007, Yates & Bergin 2009).

The issues identified from the case studies outlined in Table 6.2 are all worthy of detailed discussion but, given the themes of urbanisation and climate change of this thesis, the following are discussed in more detail: managing coastal urban growth including connecting coastal policy with urban and regional planning; planning for climate change; coastal governance; and community involvement including taking into account Indigenous coastal interests.
Table 6.2  Coastal pressures, impacts and issues from research findings

<table>
<thead>
<tr>
<th>Pressures</th>
<th>Impacts</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal urbanisation</td>
<td>Increased coastal development</td>
<td>Planning for urban growth including infrastructure, coastal urban character, environmental impacts and climate change</td>
</tr>
<tr>
<td>Predicted climate change with projected sea level rise, storm surge, increased temperatures and less rainfall</td>
<td>Increased coastal inundation</td>
<td>The lack of shared understanding of objectives and outcomes</td>
</tr>
<tr>
<td>Emerging coastal uses including desalination and wind farms</td>
<td>Warming oceans with impacts on the marine environment including increased acidification from climate change</td>
<td>Connecting better coastal management and urban planning policy and statutory planning</td>
</tr>
<tr>
<td>Demand for improved community involvement</td>
<td>The projected impacts of climate change in coastal Victoria including drought, bushfires, storm surge and sea level rise</td>
<td>Community involvement leading to disillusionment and exhaustion</td>
</tr>
<tr>
<td>Social and demographic change</td>
<td>A continuing degradation of the coastal, estuarine and marine environment</td>
<td>Possible relocation of coastal urban settlement</td>
</tr>
<tr>
<td>Involvement and protection of Indigenous and cultural interests</td>
<td></td>
<td>Planning for Indigenous and cultural heritage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research, training and community education in coastal planning, particularly at local government</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roles and responsibilities of different levels of government in relation to coastal planning and governance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Implementation of strategy and policy into statutory regimes; role of Ministerial intervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Funding regimes for coastal management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Behavioural change after extreme weather events including emergency responses versus long term planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coastal governance issues including independence of the coastal boards, loss of corporate knowledge and integrated regional management</td>
</tr>
</tbody>
</table>

As discussed in Section 2.4.2, coastal urbanisation continues in Australia and is very evident in coastal Victoria. The case studies of Point Nepean and the Geelong region confirm the pressures for urban growth in areas closest to metropolitan Melbourne to the southeast.
including the Morning Peninsula and the southwest including the Geelong region. Coastal urbanisation itself is not necessarily detrimental to the coastal environment. However, as raised in the case studies, how urban growth is managed continues to be the policy challenge. There continues to be a disconnection between coastal policy and urban and regional planning processes, exacerbated by the lack of shared objectives and outcomes for the coast. These issues are now discussed.

The definition of ICM by Sorensen (Section 6.1) and others outlined in Chapter 1 place great weight on ‘integration’ in the broadest sense. The significant benefit of applied social research is that the disconnection between theory and practice can be explored. Despite the best intentions at a policy level, the practice of ICM in Victoria indicates a persistent disjunction between the theory and the practice. In theory, the Victorian coastal policy framework incorporates all the elements suggested by Sorensen, including ICM principles addressing the themes of urban growth, climate change and the marine environment (VCC 2008). However, the concerns expressed in the focus groups suggest there remain gaps in integration, policy and implementation despite the Victorian Coastal Strategy since 1996 based on ICM. The focus group discussions highlighted two major issues: firstly, implementation at the local level and, secondly, the integration by itself is not sufficient to effect change on the ground. As one focus group participant stated, ‘Integrated planning isn’t really going to provide the answers — it’s part of the system but there needs to be something overlaying it’ (Noel Maud 2007, Gippsland coast focus group timed at 17 minutes). The other was that ‘while the strategy does have the goal of … ICZM incorporated it is not necessarily affected at the local level all the time, it doesn’t get down to the level of the statutory planning’ (Natasha Vasey-Ellis 2007, Gippsland coast focus group at 6.31 minutes). In other words, translation of ICM policies into action remains problematic.

The three case studies suggest this disjunction is happening at two levels: policy integration and statutory implementation. For example, while the VCS 2008 and the Geelong Region Plan both express strong policy statements on managing urban growth and protecting the coastal environment, neither strategic document refers to the other or, for that matter, even mentions the other. Furthermore, neither has sufficient statutory planning weight necessary for successful or ‘mandatory’ implementation in the local planning schemes (Chapter 5). The Coastal Spaces report discussed in Chapter 2 provides a clear illustration of the problem. Figure 6.2 below shows implementation of coastal urban growth settlement boundaries in only 18 per cent of the coastal planning schemes. This has increased from a very low 18 per
cent to a still low 26 per cent from 2006 to 2008 (personal communication Simon Haber, DPCD 2009), a small but positive increase following the Coastal Spaces report in 2006. This has resulted in investment by the Victoria Government to assist local councils to undertake the required planning investigations. Nevertheless, in a coastal urban growth scenario, the fact remains that only 26 per cent of coastal urban boundaries reflect current coastal policy in Victoria. The outcome has been that local councils are still approving urban developments consistent with their planning schemes but that do not yet reflect the new coastal growth boundaries recommended in the Coastal Spaces strategy and endorsed by the Victorian Coastal Strategy.

Figure 6.2  Implementation of coastal settlement boundaries

![Status of Planning for Coastal Settlement Boundaries](Source: VCC 2006, p.22)

In relation to climate change, planning for more resilient urban settlements is attracting the attention of international and national decision makers (Chapter 2, Norman 2009a,b). As stated in a recent United States report:

Overlying the projections of future climate change and its impacts on expected change in the U.S. population and development patterns reveals a critical insight: more Americans will be living in the areas that are most vulnerable to the effects of climate change (United States Global Change Research Project 2009, p.100).

After reviewing current international and national experience in the emerging field, I recommended a number of key elements that could underpin an approach by the Victorian Government in planning for coastal climate change, outlined in Table 6.3 below. While
recognising the other impacts of climate change, particularly increased temperatures and reduced rainfall, the focus of that research was coastal inundation. Pertinent to this thesis was the desirability of a national policy commitment to climate change adaptation, a national policy framework for coastal management, and a nexus between coastal vulnerability, land use planning and emergency management. Underpinning this is recognising the need for a precautionary approach to minimise future impacts on coastal communities.

Table 6.3 Planning for coastal inundation

| I. | The presence of a national policy commitment and frameworks towards climate change adaptation. |
| II. | A national coastal management framework for federal funding, coordination and support for state/regional and local initiatives. |
| III. | An understanding of the long-term benefits of ‘working with nature’ in developing adaptive responses, particularly in relation to costs. |
| IV. | An understanding that coastal responses will require a nexus between knowledge and extent of vulnerability, land use planning, emergency management and community resilience strategies to cope with the immediate, short and long term responses. |
| V. | An appreciation that planning for coastal inundation means planning for a wide range of infrastructure and coastal land uses which involve all levels of government (e.g. transport, energy, water, ports and airports, commercial, retail and housing development). |
| VI. | Specific tools will be required to respond to different and localised circumstances including environmental assessment processes for large scale infrastructure/major development. |
| VII. | Overall a precautionary approach may need to be taken to placing any future development in areas designated to be at high risk from coastal inundation in order to minimize future impacts on coastal communities. |

(Source: Norman 2009b, p.44)

In my research for this coastal climate change report, I found that ‘where there is a significant national commitment to climate change adaptation, this has largely been followed by local examples of implementation (Canada, UK, EU and NZ)’ (Norman 2009b, p.43). I also found that in the absence of such a commitment, the presence of a national framework for ICM provided support for local coastal initiatives, for example the US Coastal Management Act and PEMSEA (discussed in Chapter 2). Within those frameworks, a range of policy responses for planning for coastal inundation were being implemented, spanning the options from protect to do nothing with an underlying trend towards ‘working with nature’, particularly in the Netherlands and the UK. Three examples of a comprehensive approach to coastal
inundation included the draft London Climate Change Adaptation Strategy (Greater London Authority 2008), the Netherlands National Programme for Spatial Adaptation to Climate Change (Netherlands Government 2007) and the New Zealand ‘hazard’ approach to coastal inundation (also discussed in Chapter 2).

The recommendations in Table 6.3 have been referred to an expert committee, the Coastal Climate Change Advisory Committee, as noted previously, to examine how to incorporate coastal climate change considerations into the planning system. This committee is expected to report at the end of 2010 (DPCD 2009c). In a separate paper, Martin (2008) discusses the concept of a coastal overlay under the Planning and Environment Act 1987 that could integrate coastal management and urban planning policies for the Victorian coast. The advisory committee that reviewed the state planning policy framework in 1997 recommended this. As Martin stated, ‘the State departments responsible for planning (at that time Department of Infrastructure and Planning, later Department of Sustainability and Environment, and now the Department of Planning and Community Development) have not acted on this recommendation’ (Martin 2008). Such an overlay could readily incorporate my suggested concept of a coastal climate buffer zone in planning for climate change (Table 6.3). In the Victorian context such a coastal buffer has a strong basis to develop from as 96 per cent of the coastline is already in public ownership (Chapter 1). This public coastal land legacy combined with a concept such as the NSW Coastal Lands Protection Scheme (Chapter 4) could provide a long-term solution for protection from coastal inundation.

Planning for coastal inundation is only one part of the challenge for the Victorian coast. As mentioned in Chapter 2, the very real danger of bushfires is another (for example, Gippsland and the Otways), as mentioned in the first interim report of the Royal Commission into Bushfires in Victoria August 2009 (2009 Victorian Bushfires Royal Commission 2009). Another challenge is a lack of water, as indicated by the building of the desalination plant at Wonthaggi. The impact on biodiversity and the marine environment is only becoming understood in relation to Victoria but is already recognised at the national level with recent reports on the impact on the Great Barrier Reef (DCC 2009b) and national biodiversity (Australian Government 2009). Clearly there is a considerable amount of further research and policy analysis required as the results of relevant scientific research unfolds. However, in taking the precautionary approach, action is required now in the interim to manage what is already reasonably known in planning for coastal climate change. Underlying this is the emerging understanding of developing a coastal environment more resilient to climate
change, which has implications for ICM and urban and regional planning systems. As Beatley (2009) outlines, a new approach to planning for extreme weather events is needed, drawing on a number of case studies, particularly the New Orleans experience. He includes taking a ‘long term multi-scaled approach, prohibiting development in high-risk areas, promoting a “diverse local economy” and building more decentralised and resilient infrastructure’ (Beatley 2009, pp.59–64). His precautionary and triple bottom line approach accords with some of the key arguments developed here.

The third major issue is coastal governance and community involvement. These issues are prominent in preceding chapters. The different approaches to coastal governance evident in just three case studies in Victoria illustrates the continuing challenge to find an appropriate model of coastal governance. The more recent literature on coastal governance (mentioned in Chapter 2) has raised issues of planning for risk and uncertainty and possible liabilities in relation to planning for coastal inundation. As discussed in Chapter 2 (Adger & Jordan 2009, Milligan & O’Riordan 2007), this discussion is leading to research into new forms of coastal governance and planning for climate change based on a systems approach, and building adaptive capacity at the local and regional level (Smith et al. 2008a,b). Examples previously discussed include the three-year regional research program between CSIRO and the Gippsland Coastal Board and the award-winning Sydney Coastal Council Group’s Systems Approach to Regional Climate Change Adaptation Strategies in Metropolises (CSIRO 2009, SCCG 2009, Smith et al. 2008a,b). Directly connected to this is the issue of community involvement. Not surprisingly, this was a particularly strong theme in the focus group discussions. On the one hand, participants mentioned community exhaustion and disillusionment from the current participatory processes. On the other, it was stated that community involvement was essential to good coastal outcomes. In other words the ‘nature’ or meaningfulness of community involvement as opposed to the ‘extent’ of engagement is the important point. The questions of power, funding and accountability have been long canvassed in relation to community involvement (Norman 2006a), stemming back to Arnstein’s (1969, p.217) ‘eight rungs on the ladder of participation’: citizen control, delegated power, partnership, placation, consultation, informing, therapy and manipulation. Arnstein (1969) emphasises the value of ‘partnerships’ between government and communities:

Partnership can work most effectively when there is an organized power-base in the community to which the citizen leaders are accountable; when the citizens group has the financial resources to pay its leaders reasonable honoraria for their time-consuming efforts; and when the group has the resources to hire (and fire) its own technicians, lawyers, and community
organizers. With these ingredients, citizens have some genuine bargaining influence over the outcome of the plan (as long as both parties find it useful to maintain the partnership). One community leader described it ‘like coming to city hall with hat on head instead of in hand’.

This is of direct relevance to the regional governance model for G21 (Chapter 5) which is based on collaborative partnerships, with a wide range of committed and financially contributing organisations. Discussion on the nature of community participation or civic engagement in urban planning is also recurring in the urban planning academic literature. Healey (1996, 1997, 2008), a long term discussant on collaborative approaches to community participation and urban planning considers the nature of civic engagement in relation to spatial planning and democracy. Her emphasis is on collaboration and consensus-building in the urban planning process but she is concerned that such processes ‘can be undermined by institutional contexts which encourage fragmentation and competition’ (Healey 1996, p.207). In summarising a collection of academic papers on the issue, Healey (2008, p.382) remarks, ‘Years ago, when the planning community was exploring the implications of the idea of public participation, many argued that such a practice should never be discussed in isolation from some conception of the kind of polity within which such participation might be promoted. In this Interface, we re-iterate this argument’. In the same collection (Albrechts 2008, p.410) makes the important point that ‘civic engagement helps us to understand the full complexity of places and it helps us to broaden the scope of the answers’. In relation to ICM, Milligan and O’Riordan (2007) extend this argument with the notion of community wellbeing and the value of coastal partnerships. They conclude that there is a need for ‘assessments of new forms of coastal partnerships, which incorporate the fresh policy and planning frameworks for sustainable development and community well-being’ (Milligan & O’Riordan 2007, p.508). I would add that the re-emergence of regional approaches is the other important dimension, as illustrated by the Gippsland and Geelong regions and the CSIRO regional systems approach (Sydney Coastal Councils Group, Western Port Victoria and South East Queensland). The case studies indicate a resurgence of interest in a more regional approach to coastal planning. This renewed interest in regionalism is being reflected more broadly in urban management. In an academic review of UK urban and regional planning (Alden 2006, p.221), he concludes that:

…regional planning has ceased to be the Cinderella of the UK statutory planning system. EU enlargement, the concern of the European Commission to achieve its Lisbon and Gothenburg strategies, the focus on reducing regional disparities and the need to strengthen local communities suggest that regional planning will have another busy ten years ahead.
These considerations suggest the need for improved forms of community involvement, processes that deal with the uncertainties and risk associated with climate change and the need to include Indigenous interests and protect Indigenous and cultural heritage. The implications of this and possible coastal governance responses are discussed in Sections 6.3 and 6.4. These implications include emerging forms of coastal planning partnerships responding to urbanisation and climate change such as the G21, the Gippsland climate change research, the evolving south-east Queensland regional planning process, the Sydney Coastal Councils Group and the Western Port Greenhouse Alliance (GCB 2009, Queensland Government 2009, SCCG 2009, WPGA 2009). These more regional governance mechanisms linking scientific knowledge with urban and regional planning systems and community involvement could provide the basis for real change in partnerships, as discussed above, for implementing a more sustainable approach to coastal planning.

### 6.3 Implications for ICM

The implications of the research in this thesis for the theory and practice of ICM is now explored. This particularly answers research question 4. I will draw on two major sets of research findings:

i. Impediments to implementing ICM arising from the global and national review of the overall theory and practice of ICM summarised in the conclusions of Chapter 2 and

ii. The implications for ICM identified in the conclusions of each case study arising from the research investigations including the focus group discussions drawn on in chapters 3, 4, and 5.

The limitations or impediments identified in Chapter 2 are outlined below in Table 6.4. These impediments indicate a gap in the definition of ICM, as identified by Sorensen, and a disjuncture between theory and practice. In particular, the absence of ‘long term’ processes, sufficient integration with urban and regional planning and the absence of national policies for coastal protection and urban planning are highlighted. These I suggest are gaps in the ICM definitions that focus too heavily on integration and not enough on process or outcomes. Community seems to be conspicuously absent from both the Sorensen and importantly the VCS 2008 definitions. As stated by (Brown 2009, p.42):
The key lessons that emerge from the process of stakeholder engagement are threefold. First, inclusion of all relevant actors necessitates a very thorough and rigorous analysis of stakeholders; different techniques are required to encourage people to participate and to articulate their views. Before intervention, the dynamics and politics of local society need to be understood. Second, building trust in the process and between stakeholders takes time but it is vital for the success of both process and outcome. Third, inclusionary approaches involve an ongoing and adaptive learning process.

The case study of Point Nepean provides a good example, particularly of the consequences of the breakdown of trust. As discussed in Chapter 1, there is often a distinction drawn by academics and practitioners between coastal management and coastal planning. It may be because the focus has been ‘management’ as opposed to ‘planning’ and that may be such a distinction has been part of the problem. It has potentially separated policy from operational factors, natural resource management from the urban and regional planning systems and as such may have inhibited the implementation of coastal policy into coastal management. Another example of a gap in stakeholder input is provided in the Gippsland case study where the Gippsland Lakes and Catchment Taskforce is without individual representation from the two affected local councils thus impeding critical local input into policy responses (Chapter 4).

Table 6.4  Limitations of ICM

<table>
<thead>
<tr>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lack of a long term planning process for coastal protection</td>
</tr>
<tr>
<td>The continuing disconnection between national and regional policy and local action</td>
</tr>
<tr>
<td>The inability to respond to the environmental impacts of increasing coastal urbanisation</td>
</tr>
<tr>
<td>The new challenge of projected of climate change, requiring better integration of urban and regional planning and integrated coastal management</td>
</tr>
<tr>
<td>The lack of political commitment to implement ICM when faced with significant development pressures</td>
</tr>
<tr>
<td>Uncoordinated coastal management between the three levels of government and between states and territories</td>
</tr>
<tr>
<td>The absence of effective national policies for coastal protection and urban planning</td>
</tr>
<tr>
<td>The absence of an integrated system for land use planning of public and private lands that focuses on the coastal environment</td>
</tr>
</tbody>
</table>

The limitations identified in the conclusions of Chapter 2 (Table 6.4) are collectively significant and point towards the need to understand why these limitations are persisting after more than thirty years of ICM. The limitations could be grouped into four key areas: inadequate intergovernmental coordination, lack of explicitly agreed outcomes, multiple regimes for managing public and private coastal lands, and the lack of a national coastal policy responding to coastal urbanisation and climate change. Chapter 2 also concluded that there were four overriding themes: the need for an interdisciplinary approach, improved
connections between urban and regional planning, coastal planning and management for climate change adaptation, and recognition of the influence of wider social (e.g. demographic) and economic (e.g. employment) dynamics of a region. These limitations are not new to discussions on ICM, nor is the search to understand the disconnection between the theory and the practice (Beatley 2009). However, the limitations identified in this research suggest something more fundamental, that is, a problem with the theory of ICM in itself. As suggested earlier, it may be that integration, while important, is only part of the challenge. One can integrate around a whole range of objectives without achieving an improved coastal environment.

The three case studies and focus group discussions provide some deeper understanding of the dynamics of ICM in Victoria. To summarise, the approach to each case study involved four major steps: understanding the coastal environment and the dynamics behind change; outlining the planning and regulatory framework; identifying the key issues presently affecting the coast; and drawing out from the analysis what the implications could be for ICM in the future. A summary of the implications discussed in each case study is shown in Table 6.5.

Table 6.5 Summary of implications for ICM from case studies

<table>
<thead>
<tr>
<th>Case study</th>
<th>Implications for ICM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point Nepean</td>
<td>The process of community engagement is fundamental to any process of coastal planning and that relies on ‘trust’ and goodwill over time. This is facilitated by the development of common objectives and a commitment over the long term.</td>
</tr>
<tr>
<td></td>
<td>The inclusion of Indigenous and cultural heritage is essential to understanding and learning from the coastal environment, providing a key partnership and a relevant basis for environmental education and community capacity building.</td>
</tr>
<tr>
<td></td>
<td>Integrated public land is a critical component to ICM but is only part of the solution that requires a broader understanding of potential impacts of urbanisation, tourism and climate change on the coastal environment.</td>
</tr>
<tr>
<td></td>
<td>Environmental education is recognised as a key strategy for increasing knowledge and understanding of ICM but needs to be appropriately funded over the long term to have any lasting effect.</td>
</tr>
<tr>
<td></td>
<td>Intergovernmental relations can significantly influence (impede or facilitate) sustainable outcomes. New governance mechanisms need to be further explored to facilitate more sustainable coastal planning outcomes.</td>
</tr>
<tr>
<td>Gippsland</td>
<td>The science is not enough: the extensive scientific investigations into the water quality of the lakes systems, the possible impacts of climate change and the broader research by the Commissioner for the Environment has provided a significant body of scientific research for the Gippsland Lakes region. This has been approached on a sectoral basis and has not been translated into local planning strategies and planning law.</td>
</tr>
<tr>
<td>Lakes region</td>
<td>Community engagement is critical to effect change: the engagement of the communities in the urban design frameworks and the scenarios workshop for climate change have led to real change in the former and the beginnings of an understanding by local coastal decision makers in the latter.</td>
</tr>
</tbody>
</table>
A clear message from the Gippsland focus group discussions was that issues such as coastal climate change are ‘bigger than local government’ and require state and national government involvement in finding solutions that involve multiple jurisdictions and sectorally based government agencies.

Regional coordination is an essential component to effect integration: the Gippsland Lakes has regional coordinating bodies including the Gippsland Coastal Board, the Gippsland Lakes and Catchment Taskforce and the Gippsland Natural Resources Forum. The problem is that no single body has an overarching mandate to take an integrated regional perspective and sufficient legislative powers to give effect to policy outcomes through strategic and statutory measures at the local level.

A set of shared objectives and agreed outcomes over the long term is critical to long term coastal environmental protection: the absence of strategic plans at the local and regional levels means that there are no policy mechanism to integrate the actions of the multiple actors and interests around an agreed set of policy outcomes for the coastal environment. The risk is that this relies too heavily on ‘goodwill’ and particular champions of the coast and does not provide a basis for long term effective environmental monitoring and outcomes.

**Geelong region**

The coastal City of Geelong and surrounding Geelong region is benefiting from the development of a regional plan for the Geelong region. The presence of supporting state coastal policy and a regional plan is assisting the coastal City of Geelong and the region’s local councils by providing strategic coastal planning direction agreed to by all local councils and supported by the state government.

Regional governance and planning has persisted in the Geelong region over 30 years (an authority, a commission, an ‘alliance’) and is increasingly incorporating ICM into regional planning (Geelong Region Plan 2007).

Planning for coastal climate change is only at a formative stage in the more highly urbanised region of Geelong and needs to be supported by regional climate change scientific assessment (e.g. Gippsland Lakes CSIRO research).

An understanding of the wider social and economic pressures affecting a coastal city in proximity to a metropolitan area can provide the basis for a more integrated approach to coastal planning beyond the immediate foreshore environment.

There are some key themes arising from these implications identified by the three case studies. It is suggested these include the importance of explicitly stated agreed outcomes, the need for improved or meaningful community involvement processes that do not lead to exhaustion and disillusionment, the inclusion of Indigenous and cultural heritage considerations, regional governance and planning across public and private coastal lands, an understanding of the wider drivers of social and economic change affecting the coast, and the better integration of relevant science and urban planning. Each of themes has been raised several times throughout this thesis in chapters 2, 3, 4, and 5. Further insight has been provided by focus group discussions that reinforced many of the already identified issues and implications for ICM. The significant finding was the emphasis on the concern for improved community engagement. I think this is a very important outcome in this research and relates to some of the very recent academic comment in relation coasts, climate change and communities.

As O’Riordan (2009, p.316) argues:
Coastal agencies vie with each other over whether to continue to protect an eroding coastline, and gain public support, or let coasts evolve more naturally and face the hostility of aggrieved residents and businesses. No democracy exists in coastal areas that can plan for 100 years ahead for a coastline that could vary in so many ways, depending on climate change and many other policy interventions (Urwin and Jordan, 2008). One way forward is to visualise the possible benefits of a wholly new coastline designed and implemented over a period of fifty years. This is not easy. There are no convenient institutional arrangements for delivering such a vision, nor are existing residents necessarily the best guardians of the long-term interests of communities.

That is, he suggests that in the context of changing coastal landscapes ‘no democracy exists’ due to the challenge of long time-frames and the dynamics of uncertainty. As discussed earlier, I would suggest the contrary: that is, greater understanding and participation and civic engagement (Arnstein 1969, Healey 2008) will only occur with community involvement and it needs to remain and be strengthened in any framework for ICM. Furthermore, in responding to climate change, Graeme Pearman suggests that behavioural change will be critical: ‘we need to search deeply within ourselves and as communities for the sense of the responsibility we have towards others, and to the stewardship we owe to the millions of species that share the planet with us’ (Chandler 2009). The implications for ICM is that understanding and involving communities could be even more important in the future of ICM in terms of meaningful partnerships and regional governance and that behavioural change and community attitudes to the coastal environment will be important to achieve long term environmental outcomes.

6.4 Beyond ICM

The limitations (Section 6.2) and implications (Section 6.3) and focus group discussions (CD 2007, rear cover) lead to a number of conclusions about the future of ICM. I suggest that these are: the need for agreed and shared outcomes, a more adaptive approach to coastal planning and management, integration of ICM into urban and regional planning systems, regional coastal governance mechanisms and capacity building. I would add a sixth component, being the need for ‘monitoring and evaluation’ to be able to assess over time progress and review towards any agreed outcomes. These key elements are shown in Table 6.6 and their relevance is subsequently discussed in turn.
Firstly, ‘agreed and shared outcomes’ for the coastal environment is a message that came strongly through the focus groups. As a member of the Central Coastal Board, I know that it was a driving force behind the development of the key principles in the Victorian Coastal Strategy 2008. A hierarchy of explicitly stated principles has been a consistent approach to the Victorian Coastal Strategy (VCC 2002, 2008) with the VCS 2008 based on the following: provide for the protection of significant cultural and environmental values; undertake integrated planning and provide clear direction for the future; ensure the sustainable use of natural coastal resources; and ensure suitable development on the coast. While there is a danger that principles can be seen as too general, the evidence from the focus groups regarded the hierarchy of principles as a positive mechanism to assist resolving policy conflicts and guide implementation of coastal planning at the regional and local level (CD 2007, rear cover). Shared and agreed outcomes are also a unifying force behind the creation of the G21 Alliance Geelong Region Plan (G21 2007) as discussed in Chapter 5. I also suggest that it has been a unifying force behind the innovative research on climate change by the Gippsland Coastal Board. Both focus groups emphasised the value of shared directions: ‘The VCS (has been) quite useful in taking a broader view and especially in setting up some principles well thought out approaches to management and long term planning’ (Helen Martin 2007, Gippsland coast focus group timed at 6 minutes); ‘The goodwill and shared objectives really matters’ (Liz Johnstone 2007, central coast focus group timed at 54.25 minutes). There is a mix of language in that some participants are discussing principles, others objectives and outcomes. The commonality is an understanding of the benefit of a shared understanding of direction and with that, outcomes. The element of ‘shared and agreed outcomes’ raises implications for any approach to coastal governance in Victoria: the need for all three levels of government to have explicitly stated objectives; the need for shared agreement of multiple

<table>
<thead>
<tr>
<th>Table 6.6</th>
<th>From ICM to Sustainable Coastal Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Agreed and shared outcomes for the coastal environment (intergovernmental agreement; vertical integration)</td>
</tr>
<tr>
<td>II.</td>
<td>Adaptive and systems approach to plan for climate change (integrating the science and the planning)</td>
</tr>
<tr>
<td>III.</td>
<td>Incorporate shared outcomes and an adaptive systems approach into urban and regional planning systems to implement coastal planning policy</td>
</tr>
<tr>
<td>IV.</td>
<td>Regional governance arrangements for integration and community involvement (more than local and still accessible to the community; horizontal integration)</td>
</tr>
<tr>
<td>V.</td>
<td>Capacity building for sustainable coastal planning including interdisciplinary research, training and community education to support implementation over the long term</td>
</tr>
<tr>
<td>VI.</td>
<td>Long term monitoring and evaluation of the outcomes of the policy measures implemented in coastal planning and management.</td>
</tr>
</tbody>
</table>
objectives across the sectors in a region such as Geelong and Gippsland; and mechanisms for constant renewal as the scientific knowledge on climate change improves.

Secondly, an ‘adaptive and systems approach’ to plan for climate change (integrating the science and the planning) is a second theme to emerge from the research. This has been largely as a result of planning for climate change. A systems approach has for a long time been a tenet in the theory of urban and regional planning, most famously known through McLoughlin (1969). Its re-emergence in the research on coasts and climate in Gippsland (Chapter 4) is a response to possibly two aspects: firstly, the desire to link science and urban planning more effectively and, secondly, I would suggest, the disappearance of regional planning in Victoria over the last three decades (Geelong Commission, Latrobe Commission, Westernport Regional Planning Authority, Upper Yarra Valley and Dandenong Ranges Authority). As I stated in Chapter 2, in discussing coastal urbanisation, coastal planning is much more than dealing with environmental impact; social and economic considerations are also integral to any urban planning response (Section 2.4.2). As discussed in Chapter 2, the systems approach to climate change adaptation (Smith et al. 2008a,b) exemplifies this emerging approach to planning for coastal climate change and is consistent with both the approach by the Gippsland Coastal Board on climate change and the comprehensive approach to regional planning by the Geelong G21 Alliance (Chapter 5). Much of the recent research by CSIRO and partners has focussed on systems and adaptive capacity. I would extend this notion of adaptive capacity to an adaptive process. An example from the research in this thesis is the recent dynamic or adaptive provision for sea level rise in the VCS 2008 (discussed in Chapter 2):

Plan for sea level rise of not less than 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions, such as topography and geology when assessing risks and impacts associated with climate change. As scientific data becomes available the policy of planning for sea level rise of not less than 0.8 metres by 2100 will be reviewed (VCC 2008, p.38).

As previously mentioned, this provision has been statutory recognition by being incorporated into the Victorian State Planning Policy Framework. This was a landmark step to include an adaptive policy and process for climate change into the Victorian planning system. As it is implemented, it will represent a significant change of approach to coastal planning in Victoria. In summary, the elements of an adaptive and systems approach is drawn from more than one discipline, the emerging scientific approach to coastal planning in the context of
climate change and a systems approach to urban planning mentioned earlier.

Thirdly, a challenge arising from the above is how to incorporate shared outcomes and an adaptive systems approach into the ‘urban and regional planning system’ (strategic and statutory). The continuing disconnection between coastal policy and implementation in the urban planning system is symptomatic of this policy dilemma (e.g. implementation of coastal planning boundaries in 6.2.3, Lonsdale Lakes in Chapter 5). Planning for coastal climate change will be even more challenging, particularly for the statutory planning system. The Victorian Planning and Environment Act 1987 has not been renewed since 1987. The Victorian Coastal Strategy is reviewed every five years under the Coastal Management Act 1995 (1997, 2002, 2007). At the local level, the municipal strategic statements require updating every three years (Local Government Act 1989). The relatively static nature of the Victorian planning system will require a significant review to incorporate a dynamic approach to coastal planning and management that can respond to changing coastal landscapes. So not only is attention required to incorporate coastal policy into statutory planning provisions but also the nature of the planning system itself will need to change to accommodate the new more collaborative and dynamic approaches discussed earlier. The balance of achieving mandatory provision to ensure implementation versus flexibility to respond to changing circumstances is an urban planning dilemma. The approach by the Victorian Government to sea level rise of ‘not less than 0.8 metres’ seeks to resolve that tension by providing a minimum standard that can only be strengthened. The real possibility of dramatic weather events and the requirement to find new sites for the relocation of coastal settlements will also significantly test the present system, as demonstrated in the New Orleans aftermath (Blakely 2007). New urban tensions arise, as Blakely (Executive Director of Recovery Management New Orleans) states:

But in urban areas these impacts are not as quickly grasped until events unfold as they did in New Orleans with Katrina. The world saw how years of unequal allocations of housing stock and other resources limited the options of the poor in their attempts to evacuate. So, too climate change events and even the slow transformation of energy costs and related impacts will have dramatic impacts on the most vulnerable residents in every city. The key issues relate to locational vulnerabilities (Blakely 2007, p.18).

Collectively these changes suggest it is time for a comprehensive review of the Victorian Planning and Environment Act 1987 to respond to increasing urbanisation and the predicted impacts of climate change.
Fourthly, a key element emerging from this thesis is ‘regional governance’. The experiences in Geelong and Gippsland regions both suggest a bottom-up resurgence for a more regional approach, the most comprehensive being the G21 regional plan. On the 2 September 2009, the Independent Member for Gippsland, Craig Ingram, moved a Matter of Public Importance in the Victorian Upper House of Parliament:

That this house recognises the vital importance of the Gippsland Lakes to the economic, social and environmental wellbeing of Victoria’s east and calls on the government to guarantee all that can be done to protect and improve the environmental health, the management and the infrastructure needs of the Gippsland Lakes including appropriate actions, resources, support and management structure (Victorian Parliament 2009, p.10).

Ingram stated that ‘it is now time for that duplicated structure of these regional stakeholders organisations to be reviewed and to introduce better solutions for the long term’ (Victorian Parliament 2009, p.11). A discussion paper by the National Sea Change Taskforce (2007, p.4) has concluded with the recommendation for regional planning for coastal areas including determination of urban footprints. The need for a more regional approach to planning for coastal climate change has also been confirmed in research on Planning for Climate Change (Gurran et al. 2008, Norman 2009b). The focus group discussions also commented that planning for climate change is more than any one local council can manage (CD 2007, rear cover). So the issue is not so much whether we need a regional approach but more what kind of regional governance would meet the challenges of coastal planning and management in the future. This question goes to the heart of this thesis with a possible response outlined in Section 6.4. As outlined above, any approach will need to include the capacity to develop shared outcomes, an adaptive and systems approach, integrating coastal policy with urban and regional planning systems involving the affected communities in coastal planning processes.

Fifthly, a key element is ‘capacity building’ for sustainable coastal planning including interdisciplinary research, training and community education to support implementation over the long term. As Malcolm (then Chair of the Gippsland Coastal Board) (2007) stated:

Most local communities haven’t got the capacity, either knowledge-wise or certainly resource-wise to cope with sudden or relatively sudden dramatic changes in this situation and that is where you have to have state and federal involvement (Duncan Malcolm, Gippsland coast focus group timed at 51.03 minutes).
The issue of community education was a strong theme in the Point Nepean and Gippsland case studies. Indigenous and cultural heritage and the proposal to establish a coastal education and research centre gave considerable emphasis to the importance of increased awareness and research into coastal planning and management. The ‘scenarios’ workshop discussed in Chapter 4 on Gippsland and the future planning of Lakes Entrance is an example of new community planning techniques being developed to address the uncertainties of coastal climate change. It is a way of bringing scientific knowledge and community experience together. The implications of the above for professional training and research are significant. The interdisciplinary nature of coastal planning and management requires a fresh approach to analysis and problem solving. The emergence of interdisciplinary research institutes in universities and collaborative research such as that by the Gippsland Coastal Board (GCB 2008a) and the Geelong Region Plan (G21 2007) are representative of new approaches to tackle problems such as climate change and urbanisation. A key issue to emerge from the focus groups was the lack of capacity or skills at the local government level to respond to the challenges of sustainable coastal planning. This is not confined to the local level, with similar requirements and deficiencies at the state and national level. The creation of the federal Department of Climate Change and the Major Cities Unit in the federal public service late in 2007 is an indication of a developing national agenda on cities and climate change. The Planning Institute of Australia recognised this pressing issue in an inquiry (PIA 2005). As a member of the national steering committee it became evident from a national consultative process that planning professionals would require a wide range of skills in the future. The other major finding of direct relevance was that:

Most cities and their regions and ‘sea-change’ communities are suffering a critical shortage of planners. Over the past 3 years there has been on average a 16% vacancy rate in planning positions. Local government, as the largest employer of planners, faces the biggest challenge with recruiting and retaining planners (PIA 2005, p.i).

All the elements discussed above will amount to little if we do not have the knowledge, capacity and skills to effect change. Institutional arrangements will need to be organised in a manner that fosters capacity building in sustainable coastal planning in an increasingly uncertain coastal environment. That will require interdisciplinary teams and new partnerships between government, non-government and, in this context, coastal communities. All three case studies point to including components of such innovation: the engagement of Indigenous
people in the planning of Point Nepean, the engagement of scientists in planning the Gippsland coast and the engagement of a range of local interests in the planning of the Geelong region. This bodes well for the future. However, it may be an issue of scale. As commented in the central coast focus group, ‘One of the local governments is so small it doesn’t have the resources perhaps to have people with the expertise it needs sitting within the local government today who can adequately provide the skills to manage the coastline’ (Sue Longmore 2007, central coast focus group at 52.25 minutes). This is where a more regional approach could assist, for example the Great Ocean Road Strategy and the Geelong Regional Plan.

Sixthly, a key element is the establishment of a ‘monitoring and evaluation process’ for ICM. As indicated earlier, this was one of the key recommendations by the Victorian Commissioner for the Environment (CES 2008a). In particular, the commissioner stressed the absence of longitudinal studies as opposed to ‘one off’ research projects. Monitoring and evaluation is fundamental to any public policy process and an essential component to learning from policy successes and failures (Howlett & Ramesh 2003, p.220). Improved resourcing and commitment to the state of the environment reporting processes at the national, state and local level could be a good beginning.

The above discussion has sought to review the research findings in chapters 2, 3, 4 and 5 and extend that with further discussion on the possible implications for ICM in the future. Emerging from that discussion has been a set of elements that could form the basis of a new approach to coastal planning in Victoria. There will be others but the six elements outlined above can be directly linked to the research findings of this thesis. Section 6.4 begins to propose what these findings might mean for the future of coastal governance in Victoria.

6.5 Sustainable coastal planning

The pressures and impacts on our coastlines are increasing with coastal urbanisation and climate change. This will continue to test the current coastal governance arrangements in Victoria and elsewhere in Australia. The search for new governance arrangements is not confined to Victoria or Australia, and climate change has added a new element of uncertainty. As stated in a recent report, ‘our current governance arrangements for conserving biodiversity are not designed to deal with the challenges of climate change. We need to build agile and
innovative structures and approaches’ (Australian Government 2009, p.2). It is clear that planning for uncertainty and risk will also need to underpin any approach to coastal planning.

The following analysis will attempt to bring together all of the research findings discussed in sections 6.1, 6.2 and 6.3. It outlines the challenge of introducing change to coastal planning and management within the federal government arrangements in Australia. It reviews possibilities stemming from the range of governance models introduced in Chapter 2 (e.g. the US Coastal Zone Management Act 1972, a national coastal policy, a tripartite agreement). Following this is a discussion of the future of the current and emerging state, local and regional models introduced in the three case studies. The real challenge in Victoria and more broadly in Australia is to develop a set of shared and agreed principles for the coastal environment that can be implemented in a federation with three levels of government. Drawing of all this together, Chapter 6 concludes with a suggested possible way forward. In this respect the following seeks to answer the final research question 5: What key principles could frame a more sustainable approach to coastal planning in Victoria and more generally in Australia? As stated in Chapter 1, I have called this new approach ‘sustainable coastal planning’. It does not seek to discard ICM but rather incorporates its strengths and adapts the concept to meet the contemporary twin challenges of urbanisation and climate change. The reasons for this have been outlined in sections 6.2 (pressures, issues, impacts) and 6.3 (implications) to meet these challenges, and the proposition is now put that a way forward is a move towards more sustainable coastal planning, that is:

**Definition of sustainable coastal planning**

<table>
<thead>
<tr>
<th>Definition of sustainable coastal planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>An integrated and adaptive systems approach to coastal planning that leads to long term improved environmental outcomes for the coastal zone. The core elements are integration, adaptation, systems, long term, outcome oriented, regional, communities and a broadly defined inclusive coastal zone.</td>
</tr>
</tbody>
</table>

While many of the elements in this definition have been discussed earlier, a key issue remaining from the literature and the case studies is ‘implementation’. This issue is prevalent in the submissions to the House of Representatives inquiry into climate change and the environmental impacts on coastal communities, the latest in a series of national inquiries on coastal management (Chapter 2). As Thom (2008, p.1) asks in his submission to this federal inquiry:

Major difficulties arise when successive federal governments have not acted upon the many recommendations of these inquiries. Many ask why this is so. Are there constitutional limitations that inhibit federal intervention in the operations of state and local governments that apparently carry most if not all
the responsibility for coastal planning and management in the past and at present? Is it because successive federal governments have not seen the need to engage politically with states to fund negotiated agreements that could limit the pernicious ‘death by a thousand cuts’ that so pervades coastal management? Or is it that federal agencies find the so-called ‘wicked problem’ of coastal zone management (CZM) too complex, too cross-agency, and of a lower priority compared with other ‘national’ issues?

I suggest that a consistent and persistent theme emerging from my research may partly explain why. That is, we do not have a shared and agreed set of outcomes for the Australian coast, in Victoria and at the local government level. That is, we do not have a tripartite agreement on what outcomes we wish to achieve for the coast. In particular we do not have a shared and agreed set of outcomes in relation to coastal urbanisation and climate change. There is no vision that brings all the stakeholders and vested interest together with a common purpose. There are statements of purpose, outcomes and visions at different levels of government, as discussed in Chapter 2. As discussed in the case studies, each local government area has its own MSS. So the issue is not so much that there is an absence of stated goals, visions and objectives but more that there is not ‘an agreed and shared’ outcome for the coast. The Resource Assessment Commission came to the same conclusion:

Implementing a strategic approach to management of coastal zone resources requires that agreement be reached on a set of overall objectives that are shared by all parties with interests in the zone. Uniformity of the means of achieving agreed objectives is not critical. Successes and failures experienced in implementation are used to enlighten the process and enable management practices to be reviewed. Objectives and strategies are also reviewed on a continuing basis, to ensure that changing circumstances are taken into account in the revision of strategies and policies to implement them’ (Rec. 5.4.3, RAC 1993).

While a tripartite agreement could make a significant contribution, this would only be the first step. The next is finding a coastal governance arrangement that resolves the impediments to implementation that has frustrated so many good intentions to date. In his submission to the House of Representatives inquiry, Thom (2008) provides a comprehensive summary of the frustration expressed over the years to the succession of federal inquiries into coastal planning and management in Australia (discussed in Chapter 2). In analysing each national report, Thom (2008, pp19–20) argues for a ‘5 step model’: a national coastal policy, a national coastal zone management act, a coastal division within the federal bureaucracy, reinforcement of a federal science agency, and the establishment of an external coastal advisory committee.
Thom acknowledges that the last of these suggestions, the advisory committee, stems from research by Wescott (2006b, p.31). In a similar vein, albeit with some variation on Thom and more emphasis on a tripartite agreement and drawing on my own knowledge and experience, I put forward a seven-point plan to the House of Representatives inquiry, recommending a range of actions including a coastal climate buffer zone to minimise development in high risk areas, sustainable regional plans for managing growth and infrastructure, protection of Indigenous and cultural heritage and measures to enhance capacity building for local communities (Norman 2008a). Many of these policy responses have been raised in the research findings of this thesis, as discussed above.

The above recommendations of Thom, Wescott, Smith et al., CSIRO and Norman discussed above indicate a range of possibilities for alternative approaches to improving the implementation of coastal planning and management in Victoria and Australia. In returning to the theory of ICM, all these suggestions also meet the test of ‘integration’ as defined by Sorensen. Yet the question still remains: Will they lead to implementation of a more sustainable approach to coastal planning? Thom (2008, p.1) argues that for any of this to be implemented requires ‘leadership’ at the national level. This brings us to a final discussion on the need for a national approach to coastal planning and management.

There is general agreement among Australian coastal academics on the need for a national coastal policy (Thom 2008, Wescott 2006b, Lazarow et al. 2006, Harvey & Caton 2003). The case studies and focus group discussions in this thesis suggest that this should be a tripartite policy of local, state and national government. The merit of the US coastal management model is canvassed in Chapter 2. To reiterate, there are two major incentives for the states there: the first is to manage federal government activity in a state’s coastal region and the second is the substantial coastal grants program that flow from having an agreed coastal management plan that all levels of government have signed on to. Establishing a coastal management act in Australia would move towards addressing some of the issues raised earlier. The political will necessary to achieve this is also recognised by one of the strongest proponents, Bruce Thom (2008). The voluntary nature of the US model could be attractive to a federal structure of government, in Australia has moved more towards the use of intergovernmental agreements through COAG. There is not an inconsistency in adopting both national legislation and a new COAG agreement process that reinforce each other. The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 is one model of national environment legislation. The much earlier original Intergovernmental Agreement on the Environment 1992 is an example of a tripartite agreement. One or the other
or possibly both could be adapted to provide a nationally integrating mechanism for providing a nationally consistent and coordinated approach to coastal planning and management in Australia.

The three case studies in this thesis also raise questions of coastal regional governance. The regional Gippsland Coastal Board and its work with partners on regional climate change and the G21 Geelong Region Alliance and Geelong Region Plan are both innovative regional solutions. The regional framework of the Victorian Coastal Council and the three regional coastal boards is another example of a regional approach (Chapter 2). Outside of Victoria, significant regional approaches include the pioneering work of both the Great Barrier Reef Marine Park Authority and the South East Queensland regional plan, providing possible integrated models for coastal planning (Queensland Government 2009, GBRMPA 2009).

There is no shortage of examples. However, like many of the examples raised in this thesis they represent ‘one off’ responses to particular coastal issues. The research findings of this thesis confirm the persistent search at the local level for more regional models of governance to manage coastal urbanisation and the impacts of climate change.

Returning to the research outcomes of this thesis, the following is suggested as a pathway from ICM towards more sustainable coastal planning. It draws on chapters 2, 3, 4, 5 and 6. It is argued from an urban and regional planning perspective and is focused very much on the coastal edge and the urban and regional interface. It mentions the marine and catchments interfaces where applicable but does not deal with these dimensions in depth. The case studies are within Victoria. As discussed in Chapter 1, an early decision in the methodology was made to investigate three case studies in depth rather than more case studies within Australia in lesser detail. Recognising these limitations, some lessons from the research may inform coastal planning in Australia. The particular focus is the twin dimensions of coastal urbanisation and the impacts of climate change. This thesis brings together the outcomes of this research to make a contribution to the theory and practice of ICM. In this context and based on the research findings discussed above, I propose that the following five steps including a set of principles could frame a more sustainable approach to coastal planning in Victoria and more generally in Australia (research question 5):

1. That the theory of ICM be expanded to include the concept of outcomes, an adaptive and systems approach, improved regional governance, community engagement and long term outcomes. I have tentatively suggested a possible new definition of
sustainable coastal planning: an integrated and adaptive systems approach to coastal planning that leads to long term improved environmental outcomes for the coastal zone.

2. That the separation of coastal planning and coastal management is no longer helpful and should be integrated under the new framework of sustainable coastal planning.

3. That the six key elements identified from the implications for ICM discussed above form the basis of a new set of six principles for sustainable coastal planning, that is:

   i. Agreed and shared outcomes for the coastal environment (intergovernmental agreement; vertical integration)

   ii. Adaptive and systems approach to plan for climate change (integrating the science and the planning)

   iii. Incorporation of the shared outcomes and an adaptive systems approach into urban and regional planning system (strategic and statutory)

   iv. Regional governance arrangements for integration and community involvement (more than local and still accessible to the community; horizontal integration)

   v. Capacity building for sustainable coastal planning including interdisciplinary research, training and community education to support implementation over the long term

   vi. Long term monitoring and evaluation of the outcomes of the policy measures implemented in coastal planning and management.

4. That the impediments to change and implementation be addressed through a tripartite approach (national, state, local) to implementing coastal planning through either a COAG agreement or a national coastal management act or preferably both, and that any governance arrangement supports regional approaches to implementation.

5. That theory and practice of coastal planning and management recognise the critical contribution of improved community involvement processes and environmental and planning education in implementing long term learning and behavioural change in relation to the coastal environment.

From an urban planning perspective the above key principles outlined in step 3 above could be incorporated into both the Victorian Coastal Strategy and the Victorian State Planning Framework. This could be supported by a coastal overlay incorporating a coastal climate change buffer zone including mandatory provisions for local planning schemes, with a
tripartite agreement to achieve vertical and horizontal integration with agreed outcomes. Only then would there be a consistent and coordinated approach to coastal planning and management within Victoria. The explicit provision for regional planning in the Victorian planning system would also facilitate formal recognition of regional initiatives such as G21 and a future regional strategy for the Gippsland coastal region. The Victorian Government has commenced a review of the *Planning and Environment Act 1987* although the initial stages are focussed on efficiency and process. Finally, as highlighted above, statutory and strategic measures will only go so far and need to be supported by research and education. Only then do we have the basis for long term change.

6.6 Conclusion

The research findings of this thesis outlined in 6.1, 6.2, 6.3 and 6.4 build on the considerable research already undertaken by leading coastal academics within Australia and overseas (e.g. Thom, Smith, Harvey, Caton, Kay & Alder, Gurran, Wescott, Lazarow et al., Sorensen, Cicin-Sain & Knecht, O’Riordan). The specific intellectual contribution from my research is the knowledge and understanding brought to coastal management from the disciple of urban and regional planning. The key elements put forward for a transition to a more sustainable approach to coastal planning are derived specifically from the research of this thesis and provide only the beginning of a new approach to coastal management, initially in Victoria. They could also importantly provide the basis for a set of principles for sustainable coastal planning in Australia, based on further research and interstate case studies.

However, the overriding impediment to implementation still remains, i.e. lack of political commitment and leadership. As stated recently in the Australian press:

> Beyond the sun rising in the morning, little is certain in nature. But this much seems guaranteed: it will be a punitively expensive and in some cases, futile exercise to protect all of our coastline in coming years. And so far, no level of government is keen to foot the bill. But as long as an ocean view remains one of the great Australian dreams, it will be a bold politician who dares to declare the dream over (Jackman 2009).

May I suggest that the groundswell of evidence and developing networks of coastal colleagues could make a difference? The recent establishment of the Australian Coastal Society is one example. As mentioned several times in this research and remarked on by participants in the central coastal region focus group: ‘it’s the shared objectives and the
goodwill that makes it happen’ (central coastal region focus group 54 min). I would extend
this to suggest it is the shared outcomes, commitment and ‘goodwill’ that make it happen and
provide the necessary response to vested interests who may wish to impede change. I would
also suggest, drawing on the ideas of O’Riordan, that the impact of climate change on the
coast will be the main catalyst for change, specifically the impact of extreme weather events
with the potential risk to coastal communities. The aftermath of the catastrophic bushfires in
Victoria in 2009, including coastal areas, has engaged the research community more broadly
on the issue of planning and extreme weather events (Handmer & Haynes 2008, Bushfire
CRC 2009). In this respect the impending report of the current federal inquiry into coastal and
climate change could potentially be a very significant contribution to advancing the
implementation of coastal policy in Australia.

Chapter 6 has brought together the issues and implications arising from this research on ICM.
I have suggested a set of key steps and principles in response to coastal urbanisation and the
impacts of climate change. I hope these research findings may add to the growing body of
knowledge on ICM and make a contribution to long term change for improved protection of
the coastal environment in Victoria and nationally.
7. Conclusion

7.1 Introduction

The purpose of this thesis has been to examine the theory and practice of ICM to explore its relevance to the contemporary issues of coastal urbanisation and the projected impacts of climate change. The approach has been based on five key research questions outlined in Chapter 1. The methodology has been based on applied research techniques, complemented by a literature review, place-based case studies and focus groups. This final chapter will outline the research journey and the key research themes and identify further research gaps and opportunities.

To restate, the five key research questions were:

1) What is the current state of knowledge and academic debate on integrated coastal management and coastal planning?
2) What are the gaps in the theory of ICM and the disjuncture between theory and practice in coastal planning? Why is this significant?
3) What are the implications for coastal planning in Victoria and Australia with particular reference to urban development and the predicted impacts of climate change?
4) How do the research outcomes contribute to the advancement of the theory of ICM and the practice of coastal planning?
5) What key principles could frame a more sustainable approach to coastal planning in Victoria and more generally in Australia?

The structure of the thesis sought to answer the key research questions in the following way. Chapter 1 outlined the purpose, the key research questions, the methodology and the structure of the thesis. The key themes of research were coastal urbanisation and the predicted impacts of climate change for the coast. In particular, attention has been given to the issue of coastal inundation from projected sea level rise and storm surge. The research has been undertaken from an urban planning perspective and seeks to better understand the connections between the strategies, plans and processes of urban and regional planning and integrated coastal management.

Chapter 2 addressed research questions 1 and 2. It explained the current state of knowledge and academic debate on integrated coastal management and coastal planning. It provided a
brief history of ICM and discussed global and national developments based on academic literature and practice. From this discussion I identified continuing limitations of ICM and some conclusions were drawn on possible gaps in the theory of ICM and the disjuncture between theory and practice in coastal planning.

Chapters 3, 4 and 5 primarily addressed research question 3. The three place-based case studies presented three different coastal environmental regions in Victoria. The Point Nepean case study dealt with a coastal headland going through a transition from a defence holding to a national park with multiple uses. A particular focus there was on integrated public-land management including community involvement in the planning process and protection of Indigenous and cultural heritage. The Gippsland region case study was focused on a coastal lakes environment, three hours’ drive from Melbourne, experiencing tourism and limited coastal development pressures. A particular focus of this case study was climate change projections for sea level rise and storm surge given the low-lying coastal lands. The Geelong region case study dealt with a developing region on the edge of metropolitan Melbourne experiencing significant urban growth and facing potential impacts of coastal climate change. A particular focus there was on the wider socio-economic influences affecting the coastal region and the re-emergence of regional planning. The three case studies were further informed by two focus groups of coastal decision makers and activists: one in the Gippsland region covering the Gippsland Lakes case study and the other in the central coast region covering Point Nepean and the Geelong case studies. The purpose of the focus groups was to go beyond the publications and fieldwork to gain a deeper insight through the experiences of active participants in coastal planning and management. This enabled a deeper understanding of the disjuncture between the theory and practice of ICM. My own active participation in coastal forums in these areas added further insights into the key issues.

Chapter 6 addressed research questions 4 and 5. It outlined the key pressures, impacts, issues and implications for ICM. In bringing all the research findings together it developed a set of key elements that could facilitate a move towards a more sustainable approach to coastal planning. Arising from this process, a set of five steps and six principles was proposed for sustainable coastal planning that could underpin an intergovernmental agreement for coastal planning in Australia.
Chapter 7 will seek to review the research findings of this thesis and its possible contribution to the theory and practice of ICM. Suggestions are made on what remaining gaps in theory and practice could be explored in a future coastal research agenda.

7.2 Integrated Coastal Management

Integrated coastal management is variously described in the academic literature (Chapter 2). For the purposes of this thesis ICM is the ‘the integrated planning and management of coastal resources and environments in a manner that is based on the physical, socio-economic and political interconnections both within and among the dynamic coastal systems, which when aggregated together define a coastal zone’ (Sorensen 1997, p.90).

As discussed in Chapter 2, the global development of ICM over a period of thirty years has made a significant contribution to coastal management throughout the developed and developing world. The incremental development of theory and practice and adoption by the OECD, the World Bank and the UNEP enabled major funding of coastal management programs in regions facing environmental stress. The contribution of ICM has been widely recognised in both academic literature and practice and has laid a strong foundation for responding to contemporary challenges. However, the combination of increasing coastal urbanisation and global climate change is bringing new challenges of a scale not seen before. Increased uncertainties and risks in coastal environments is testing the framework of ICM and urban planners to manage current and future planning in a way that protects the coastal environment and minimises risks to coastal communities.

The Australian experience with ICM has been mixed. The discussions in Chapter 2 indicate that there has been considerable uptake of ICM by governments but the experience in application has been variable. The series of national SOE reports conclude that there has been a continuing decline in the condition of the Australian coastal environment and highlight the impact of coastal urbanisation as a key contributing factor. The Victorian SOE report recommends more longitudinal research on the state of the environment to gauge a better understanding of the condition of the Victorian coast. The Victorian Commissioner for the Environmental Sustainability expressed significant concern about the potential impacts of climate change on the coastal environment with particular reference to potential coastal inundation.
The environmental impacts on the coast identified through state of the environment reporting processes also serve to highlight some the gaps in the theory of ICM and the disjuncture between the theory and practice of ICM. In reviewing the global and national experience of ICM, some limitations of ICM are identified. These include the lack of a long term planning horizon, a continuing disconnection between national, regional and local policy, the need to better integrate ICM with the urban and regional planning process, and the lack of political commitment to implement ICM when faced with significant development pressures. The limitations point to continuing international and national concerns about the progress of ICM. They also provided the basis for deeper examination of the issues and implications in the Victorian place-based case studies.

7.3 The Victorian experience

Integrated coastal management is the basis of coastal planning and management in Victoria. It is incorporated into the *Victorian Coastal Management Act 1985* and is the framework for the Victorian Coastal Strategy 2008. The Victorian Coastal Council and three regional coastal boards support its implementation. So, in theory, all should be well for the Victorian coastal environment. However, the research findings suggest this is only partly true and that some policy failures persist. Point Nepean, the Gippsland Lakes and the Geelong region are all experiencing the impacts of coastal urbanisation to some extent and all three locations are predicted to face the impacts of climate change. By researching the experiences of ICM in three different coastal environments, there has been the opportunity to ascertain whether there are common policy failures in implementation. The case studies reveal insight into the approach to ICM in the different locations influenced by local conditions, governance structures and complexity. This provides evidence for considering more carefully what the implications may be for ICM and coastal governance more broadly. The two focus groups provided further insights into these issues, with direct input from coastal decision makers and activists. These participants are involved extensively with the current implementation of ICM in Victoria and were able to bring experience and knowledge to validate or question the preliminary findings of the case studies.

The three case studies and the focus groups point to a number of important implications for ICM. A common theme is the importance of shared and agreed outcomes. The implication for ICM is that the value of integration in ICM is significantly enhanced if there are explicitly stated long term intentions for the coastal environment, as recommended and discussed earlier by the national Coastal Zone Inquiry 1993. While there exists a national cooperative approach
to integrated coastal zone management and a Victorian coastal strategy and municipal strategic statements, there is no tripartite agreement between national, state and local government on the critical issues of coastal urbanisation and coastal climate change. In other words there is no national coastal plan.

A second common theme is the need for improved community processes. The focus group discussions particularly emphasised that communities are ‘feeling exhausted’ and disillusioned, and what was required was more effective community engagement, not necessarily more. This issue is becoming even more paramount in the context of climate change, with potentially much uncertainty and time horizons of one hundred years. As O’Riordon (2009, p.316) asks, who is the constituency to consult with in such a scenario? The implications for ICM is that the long term perspective is even more important today than before and that new techniques such as scenario planning may need to become part of the ICM framework. The other implication concerns the uncertainties and the cumulative pressures of coastal urbanisation and climate change, which may require a more adaptive and systems approach to coastal planning and management. This draws on the recent research of CSIRO (2009) and others (Smith et al. 2008a,b).

The third key theme is the need to better connect coastal planning and management with the urban and regional planning system. Over the last decade there has been considerable focus on the catchment–coastal–ocean continuum, as discussed in Chapter 2. This has made a significant contribution to a more integrated approach to natural resource management and has been applied actively in Victoria. However, this approach alone has failed to sufficiently influence decision-making processes in the urban planning system. Examples are the very slow implementation of coastal growth boundaries (Figure 6.2) and the lack of climate change planning provisions in the MSSs in local planning schemes (Vasey-Ellis 2009). The implication for ICM is that the theory needs to further evolve to embrace urban and regional planning and/or urban and regional planning needs to embrace ICM. This has implications for approaches to coastal planning and management and also possible forms of coastal governance in the future. My suggestion, discussed in Chapter 6, of incorporating a coastal overlay including the concept of a coastal buffer zone would be one effective mechanism better integrating ICM with the urban and regional planning system and responding to projected coastal inundation.
This brings us to the fourth major theme, namely coastal governance. The case studies have been valuable in revealing a re-emergence of a regional approach to coastal planning and management. As discussed in Chapter 6, in Victoria there have been episodes of regional planning particularly during the 1970s. This more holistic approach to urban management takes an integrative approach to the range of pressures, impacts and policy responses and recognises the interconnections within the dynamics of a growing urban region. The impact of coastal urbanisation together with climate change appears to have triggered a renewed interest in regionalism with a greater emphasis on integrating science and urban planning. The Gippsland regional approach to coastal planning is one example. The more developed example is the community-generated G21 Geelong Region Alliance. The more active inclusion of Indigenous coastal interests is an important part of such an inclusive approach to coastal planning in some regions.

Other important themes discussed in Chapter 6 included capacity building and the importance of long term monitoring and evaluation. The issues and implications for ICM that stem from the research suggest that the theory of ICM needs to be reviewed in the light of contemporary policy challenges. It does not discard ICM but rather incorporates its strengths and adapts the concept to meet the contemporary twin challenges of urbanisation and climate change. This has implications for the practice of ICM, hopefully leading to improved environmental outcomes for the coast.

7.4 A pathway to more sustainable coastal planning

Chapter 6 outlines the research findings and the arguments for developing a more sustainable approach to coastal planning. A pathway to more sustainable coastal planning is derived from the research findings and based on five steps and six principles that could underpin an intergovernmental agreement for coastal planning in Victoria and possibly nationally. It seeks to address the identified impacts, issues and implications for ICM from the research findings.

The five steps involve expanding the theory of ICM to be outcome based and regional in its approach to coastal planning and management. In the context of climate change, a more adaptive and systems approach has been incorporated, and the even greater importance of community engagement in coastal planning processes during a period of increased uncertainty and change recognised. The principal instrument for change is a tripartite intergovernmental agreement on sustainable coastal planning underpinned by a set of six principles. These include: agreed and shared outcomes for the coastal environment to facilitate horizontal and
vertical integration; an adaptive and systems approach integrating science and urban planning and drawing on experience and knowledge in both disciplines; incorporation of the shared outcomes and an adaptive approach into urban and regional planning systems for local implementation; regional governance arrangements for integration of policy outcomes and community involvement; capacity building for sustainable coastal planning including interdisciplinary research and community education and long term monitoring and evaluation.

In proposing the set of key steps and principles for a more sustainable approach to coastal planning, the limitations and the scope of my research is recognised (Chapter 1). These findings could also be enriched by additional case studies interstate to provide an even greater understanding of coastal planning in Australia. Chapter 6 highlights the continuing political challenges for implementation and the implications, particularly for coastal governance. I conclude that the combination of developing coastal networks and the impacts of climate change will be major contributors to facilitating a stronger political commitment to implementing sustainable coastal planning. The current national parliamentary inquiry into climate change and the environmental impacts on coastal communities will be an important test of that commitment.

7.5 Further research questions

The research findings of this thesis as discussed above identify continuing gaps in the theory and gaps between theory and practice of ICM that warrant further investigation beyond the scope of this research. In response and as a contribution to the field of coastal planning and management research I put forward the following research questions for consideration:

i. That the contribution and importance of ‘leadership’ in coastal environmental protection be examined as a critical component to successful implementation of ICM (this issue being raised both in the focus groups and in Chapter 6)

ii. That a national review of monitoring and data collection on the coastal environment be undertaken to respond to the recommendations of the Victorian Commissioner for Environmental Sustainability, as discussed in Chapter 6

iii. That the wider influences of power, politics and corruption be examined in relation to coastal development as a possible reason why ICM is not being implemented

iv. That the broader impacts of climate change on the coastal environment, such as bushfire, water and heat, and the implications for national coastal policy be examined through selected case studies throughout Australia
v. That a national review of provisions for identifying and protecting Indigenous coastal heritage be undertaken to develop a national approach to this critical issue

vi. That regional planning and governance mechanisms that can embrace coastal planning objectives within a wider region (e.g. Geelong Region Plan, South East Queensland Region Plan, Sydney Coastal Councils) be further examined

vii. That community participation processes in coastal planning and management be reviewed in planning for climate change to facilitate community input into scenario planning for risk and uncertainty over the very long term.

These research questions are just the beginning of a long term research agenda into what I believe will be a very exciting and growing research field. The questions are inherently interdisciplinary and as such the challenge will be to find the research funds to support them. However, that’s another problem that points to the need for a national coastal planning research fund.

7.6 Conclusion

The above discussions and conclusions from this research have sought to answer the five key research questions for this thesis. I believe that this has been achieved through the research method and the structure of the thesis covering the state of knowledge of ICM, the gaps in theory and the disjuncture between theory and practice, and the implications for ICM in Victoria and possibly Australia. A new approach for more sustainable coastal planning has been advanced to respond to current impediments to change, and opportunities for further research in this critical field have been advanced for consideration. The focus has been more on strategic planning and governance rather than a detailed examination of statutory law. Indeed, there are many areas that have not been covered that lie outside the scope of this thesis and require further investigation. Some of these areas have been highlighted for a subsequent coastal research agenda. ICM has clearly made an enormous contribution over the last thirty years. It has provided the foundation for tackling increasing coastal urbanisation, particularly in the Asia-Pacific region, and the potential impacts of coastal inundation. The contribution of this research has been to better appreciate the complexities involved in implementing ICM in Victoria and to further understand what implications this may have for coastal planning and management more generally. A tripartite approach based on outcomes agreed by all parties has been proposed as one way forward. To conclude, as Australians, we love our coast.
As Tim Winton writes:

I lived five kilometres inland, a blinding limestone road away from the coast. My house had no view; I was landlocked by picket fences and parked cars and homework, but in the afternoons I could smell the Fremantle doctor coming in across the treetops, stirring the curtains and the copper-boiled washing. It came as sweet relief, cool and merciful, and at night as it moderated to a gentle breeze it brought the coast upon it in the scents of brine and seagrass. The pounding of the swell against the land’s edge was so clear it seemed the sea was only a dune away. I didn’t need a map to know where I was. In the atlas I lived in a dot, but with that breeze on my back I had a life and a place (Winton 1993, p.10).

The love of our coast has not diminished over time. Neither has our impact, as discussed at the commencement of this research. The stewardship of our coastal environment is the responsibility of this generation like never before. I hope that this contribution to the theory and practice of ICM helps build a pathway towards a more sustainable approach to coastal planning for the benefit of our coast and future generations.
References


Australian Advisory Committee on the Environment, 1975, *Coastal land*, report no. 5, Department of the Environment, AGPS, Canberra.


Bailey, F, 2004, Letter from Parliamentary Secretary to the Minister for Defence, Fran Bailey to Chair Central Coastal Board, 17 February, Melbourne.


DCC, 2009a, *Climate change science*, Department of Climate Change, Canberra.


DSE, 2007, *Coastal towns design framework project*, Department of Sustainability and Environment, Melbourne.


DSE, 2009b, *Victorian coastal acid sulfate soils strategy*, Department of Sustainability and Environment, Melbourne.

DSE 2009c, *Gippsland region sustainable water strategy*, Discussion Paper, Department of Sustainability and Environment, Melbourne.


Fletcher, 2008, ‘The coastal idylls where controversy is raging over mankind’s faltering efforts to keep the waves at bay; Britain’s sea defences’, *Times*, 3 May, London.


GCB, 2008a, *Climate change, sea level rise and coastal subsidence along the Gippsland Coast*, final report, phase 2 of the Gippsland Climate Change Study, July, Bairnsdale.

GCB, 2008b, *Gippsland Coastal Board on climate change effects*, media release, 10 July, Gippsland Coastal Board, Bairnsdale.


Gurran, N, Squires, C & Blakely, E, 2006, *Meeting the sea change challenge: Best practice models of local and regional planning for sea change communities*, report no. 2 for the National Sea Change Taskforce, Planning Research Centre, University of Sydney, Sydney.


Heinrichs, P, 2003, ‘Stick to the point for history's sake, say park campaigners’, *Sunday Age*, 29 June, Melbourne.


IPCC, 1993, *Preparing to meet the coastal challenges for the 21st century*, World Coast Conference Agenda for Action, Intergovernmental Panel on Climate Change and others, Noordwijk, Netherlands.


Keating, P, 1995, Community and nation: A national and regional development agenda, statement by the Prime Minister of Australia, Hon. Paul Keating, AGPS, Canberra.


Lazarow, N, Souter, R, Fearon, R & Dovers, S (eds), 2006, Coastal management in Australia — Key institutional and governance issues for coastal natural resource management and planning, CRC for Coastal Zone Estuary and Waterway Management supported by ANU and the National Sea Change Taskforce, Queensland.


Martin, H, 2008, Options under the Victorian planning provisions for managing climate change impacts in coastal areas, paper prepared for the Gippsland Coastal Board Forum on Options for Adapting to Climate Change on the Gippsland Coast, 11–12 September, Lakes Entrance, Victoria.


Minister for Environment, Heritage and the Arts, 2008, $22.5 million in grants during Coastcare Week, joint media release by Hon. Peter Garrett MP & Hon. Tony Burke MP, 3 December, Australian Government, Canberra.


MPSC, 2008, Submission to the House of Representatives inquiry into climate change and the environmental impacts on coastal communities, Mornington Peninsula Shire Council, Mornington, Victoria.


National Native Title Tribunal Research Unit 2001, Aboriginal use of the sea in southwestern and southeastern Victoria, May, National Native Title Tribunal, Melbourne.

National Sea Change TaskForce, 2006, Sea change sustainability charter, 5 April, National Sea Change TaskForce, Sydney.


NOAA, 2008, *Envisioning our coastal future*, National Oceanic and Atmospheric Administration, Maryland, USA.


Norman, B, 2006a, *Community partnerships on the Australian coast*, Governments and Communities in Partnership Conference, pp. 25–7, September, Centre for Public Policy University of Melbourne, Parkville.

Norman, B, 2006b, *A commitment to urban Australia — A response to the ALP discussion paper on urban development, housing and local government*, 17 May, Australia Fabian Society, Melbourne.

Norman, B, 2008a, *Submission to the House of Representatives inquiry into climate change and the environmental impacts on coastal communities*, House of Representatives Standing
Committee on Climate Change, Water, Environment and the Arts, Parliament House, Canberra.


Norman, B, 2008c, *Coastal planning and climate change — Planning for coastal inundation*, keynote presentation, Gippsland Coastal Board forum: Options for adapting to climate change on the Gippsland coast, 11–12 September, Lakes Entrance, Victoria.

Norman, B, 2009a, ‘Principles for an intergovernmental agreement for coastal planning and climate change in Australia’, *Habitat International*, 33, pp. 293–9, Elsevier, Netherlands.

Norman, B, 2009b, *Planning for coastal climate change — An insight into international and national approaches*, prepared for the Department of Planning and Community Development, Victoria.


Steffen, W, 2009, Climate change 2009 — Faster change and more serious risks, prepared for the Department of Climate Change, Canberra.


Thwaites, J, 2004, No trust nominee while deed fails to guarantee Point Nepean handover — Thwaites, media release, 31 August, Melbourne.


Wellington Shire Council, 2009a, *Coastal solution proposed*, media release, 22 April, Sale, Victoria.


Glossary

**Coastal action plan**: a land use plan prepared, by the regional coastal boards, that can cover strategic directions for development and use and must be consistent with the Victorian Coastal Strategy.

**Coastal management**: usually concerned with management and implementation of policies and actions in the coastal zone.

**Coastal management plan**: a land use plan prepared by the secretary of the department, or a committee of management established under the *Crown Lands (Reserves) Act 1978*.

**Coastal planning**: usually concerned with long term plans for the coastal zone.

**Coastal zone**: includes the sea and the seabed to the state limit three nautical miles or 5.5 kms; land and inland waters in the coastal catchment (VCC 2008, p.73).

**Coastline**: the coastal edge estimated to be 36,000 kilometres long, as defined by the Australian Government (DEH 2006).

**Integrated coastal management**: the integrated planning and management of coastal resources and environments in a manner that is based on the physical, socio-economic, and political interconnections both within and among the dynamic coastal systems, which, when aggregated together, define a coastal zone. An integrated approach requires both the horizontal (cross-sectoral) and vertical (the levels of government and non-government organisations) coordination of those stakeholders whose actions significantly influence the quantity or quality of coastal resources and environments.

**Municipal strategic statement**: the principal strategic statement for a local government area in Victoria that outlines the rules and regulations for urban development and use (see Appendix 3).

**State Planning Policy Framework**: the principal state urban planning policy section in the Victorian planning system under the *Planning & Environment Act 1987* (see Appendix 3)

**Sustainable coastal planning**: an integrated and adaptive systems approach to coastal planning that leads to long term improved environmental outcomes for the coastal zone. The core elements are integration, adaptation, systems, long term, outcome oriented, regional, communities and a broadly defined inclusive coastal zone.
**Sustainable use**: use of resources in a way and at a rate that does not lead to the long term decline in biological diversity, thereby maintaining their potential to meet the needs and aspirations of present and future generations.

**Urban and regional planning system**: includes the system of urban and regional strategic plans, statutory planning schemes, local planning policies and guidelines that plan and regulate development and land use activity.
Acronyms

AAP  Australian Associated Press
ABC  Australian Broadcasting Corporation
AHC  Australian Heritage Council
ALP  Australian Labor Party
CAMBA  China Australia Migratory Bird Agreement
CAP  Coastal action plans
CCB  Central Coastal Board
CD  Compact disc
CES  Commissioner for Environmental Sustainability
CMA  Catchment management authority
CMP  Community master plan
COAG  Council of Australian Governments
CRG  Community reference group
CSIRO  Commonwealth Scientific and Industrial Research Organization
CZM  Coastal zone management
CZMA  US Coastal Zone Management Act 1972
DAF  Development assessment forum
DCC  Department of Climate Change
DEFRA  Department of Environment, Food and Rural Affairs (UK)
DEWHA  Department of Environment, Water, Heritage and the Arts
DPCD  Department of Planning and Community Development (Victoria)
DPI  Department of Primary Industry
DSE  Department of Sustainability and Environment (Victoria)
EEA  European Environment Agency
EPBC  Environment Protection and Biodiversity Conservation Act 1999
EU  European Union
EUCC  European Coastal and Marine Union
G21  Geelong Region Alliance
GBRMPA  Great Barrier Reef Marine Park Authority
GCB  Gippsland Coastal Board
GINRF  Gippsland Integrated Natural Resources Forum
GGC  Greater Geelong Council
GORCC  Geelong Ocean Road Coastal Committee
GRC  Geelong Regional Commission
GRPA  Geelong Regional Planning Authority
ICM  Integrated coastal management
ICZM  Integrated coastal zone management
IPCC  Intergovernmental Panel on Climate Change
JAMBA  Japan Australia Migratory Birds Agreement
MPSC  Mornington Peninsula Shire Council
MSS  Municipal strategic statement
NCCARF  National Climate Change Adaptation Research Facility
NOAA  National Oceanic and Atmospheric Administration
NSTF  National Sea Change Taskforce
NSW  New South Wales
NURDA  National Urban and Regional Development Authority
NZ  New Zealand
OECD  Organisation for Economic Cooperation and Development
PEMSEA  Partnerships in Environmental Management for the Seas of South East Asia
PIA  Planning Institute of Australia
RAAF  Royal Australian Air Force
RAC  Resource Assessment Commission
SCCG  Sydney Coastal Councils Group
SEQ  South East Queensland
SOE  State of the Environment
SPPF  State Planning Policy Framework
UK  United Kingdom
UN  United Nations
UNCED  United Nations Conference on Environment and Development
UNEP  United Nations Environment Program
UNESCO  United Nations Economic, Scientific and Cultural Organisation
US  United States
USA  United States of America
VCAT  Victorian Civil and Administrative Tribunal
VCC  Victorian Coastal Council
VCS  Victorian coastal strategy
VNPA  Victorian National Parks Association
VRCA  Victorian Regional Channels Authority
<table>
<thead>
<tr>
<th>WCED</th>
<th>World Conference on Environment and Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPGA</td>
<td>Western Port Greenhouse Alliance</td>
</tr>
</tbody>
</table>
### Appendix 1  Key coastal governance arrangements in Australia, 30 June 2009

<table>
<thead>
<tr>
<th>Governance</th>
<th>Key coastal policy</th>
<th>Legislation</th>
<th>Key related legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Territory</strong></td>
<td>Department of Resources, Environment, the Arts and Sport Department of Infrastructure and Planning</td>
<td>No specific coastal policy No specific coastal legislation</td>
<td>Planning Act 2009 Environment Assessment Act 1994</td>
</tr>
<tr>
<td><strong>Western Australia</strong></td>
<td>WA Coastal Planning and Coordination Council Ningaloo Sustainable Development Committee WA Planning Commission</td>
<td>Statement of Planning Policy 2.6 (State Coastal Planning) Regional coastal strategies (Ningaloo) State Coastal Planning Policy 2003</td>
<td>No specific coastal legislation</td>
</tr>
</tbody>
</table>
Appendix 2  Victorian coastal management system 2009

The Coastal Management Act 1995 establishes the framework for coastal planning and management in Victoria. Its purposes are to establish the Victorian Coastal Council; to provide for the establishment of regional coastal boards; to provide for coordinated strategic planning and management for the Victorian coast; to provide for the preparation and implementation of management plans for coastal Crown land; and to provide a coordinated approach to approvals for the use and development of coastal Crown land. (Section 1 of the Act).

The Victorian Coastal Council (VCC) is appointed on the recommendation of the Minster for the Environment and comprises people with a range of specified skills (conservation, tourism, business, recreation, commerce, issues relating to Indigenous people, community affairs, town planning, local government and coastal engineering). It is the key advisory body to the minister on coastal matters. Three regional coastal boards (Western, Central and Gippsland) appointed by the minister support the VCC. The Act outlines the functions of the council and the boards and the minister may also give direction to the VCC within the powers of the Act.

A Victorian coastal strategy (VCS) must be prepared and provide for the ‘long term’ planning of the Victorian coast: to ensure the protection of significant environmental features of the coast; to provide clear direction for the future use of the coast including the marine environment; to identify suitable development areas and development opportunities on the coast; and to ensure the sustainable use of natural coastal resources (Section 15 of the Act). The VCS must be reviewed very five years.

A coastal action plan (CAP) is prepared by the regional coastal boards and can cover strategic directions for development and use and must be consistent with the VCS. A CAP is approved by the both the VCC and the minister. A coastal management plan (CMP) is prepared by the secretary of the department, or a committee of management established under the Crown Lands (Reserves) Act 1978. A CMP must be consistent with the VCS and approved by the minister. Land managers must ‘take all reasonable steps to give effect to an approved management plan’ (Section 36 of the Act).
Appendix 3  Victorian State Planning Policy Framework

The framework is established by the *Planning and Environment Act 1987*, and comprises a number of key components shown in the diagram below.

**Victorian planning system 2009**

![Diagram of Victorian planning system 2009](source: Martin 2008, p.4)

The two key urban planning policy documents for the coast are the **State Planning Policy Framework** (SPPF) and the **Municipal Strategic Statement** (MSS). The SPPF includes a specific section of coastal matters. Clause 15.08 ‘Coastal Areas’ includes policies on: integrated planning for the future, managing coastal hazards and the coastal impacts of climate change, population growth and sustainable development, sustainable use, protection and management of environmental and cultural values, and planning for the Great Ocean Road region. The SPFF requires that decision making by responsible authorities be ‘consistent with’ the VCS, coastal action plans and management plans. This provides a direct link to the Victorian coastal management system (Appendix 2). The municipal strategic statement (MSS) is the principal strategic statement for a local government area. The MSS provides the strategic framework for the local planning scheme that outlines the rules and regulations for urban development and use. It provides the opportunity for a link to coastal planning and management at the local level.
Appendix 4  Ethics research approval by RMIT University

24 September 2007

Ms Barbara Normann
School of Global Studies, Social Science and Planning
RMIT University

Dear Ms Normann,

Re: Human Research Ethics Application – Register Number HREC A-107-07/07

The Design and Social Context Human Research Ethics Sub-Committee, at its meeting on 21 September 2007 considered your amended ethics application entitled “Coastal planning in Australia: integrated coastal management to sustainable coastal planning”.

I am pleased to advise that your application has been approved as Risk Level 2 classification by the committee. This approval will now be reported to the University Human Research Ethics Committee for noting.

This now completes the Ethics procedures. Your ethics approval expires in December 2007.

Please note that all research data should be stored on University Network systems. These systems provide high levels of manageable security and data integrity, can provide secure remote access, are backed on a regular basis and can provide Disaster Recover processes should a large scale incident occur. The use of portable devices such as CDs and memory sticks is valid for archiving, data transport where necessary and some works in progress. The authoritative copy of all current data should reside on appropriate network systems; and the Principal Investigator is responsible for the retention and storage of the original data pertaining to the project for a minimum period of five years.

You are reminded that an Annual/Final report is mandatory and should be forwarded to the Portfolio Ethics Subcommittee Secretary by mid-December 2007. This report is available from: URL: http://www.rmit.edu.au/rd/hrec_apply

Should you have any queries regarding your application please seek advice from the Chair of the sub-committee Associate Professor Heather Fehringer on (03) 9925 7840, heather.fehringer@rmit.edu.au or contact Fiona Nolan on (03) 9925 3283 or email fiona.nolan@rmit.edu.au

I wish you well in your research.

Yours sincerely

Fiona Nolan
Acting Secretary
DSC Human Research Ethics Sub-Committee

cc: Prof Mike Berry. School of Global Studies, Social Science & Planning
Appendix 5  Supporting publications, conference papers and presentations

During the course of undertaking my research for this thesis I have produced the following publications:


5. Norman, B, 2006, *Sustainable outcomes for the Australian coast — can we deliver?*, keynote speech to the National Sea Change Task Force, Victor Harbour.


