
THE ESTIMATED ECONOMIC IMPACT OF BATEMANS MARINE PARK ON COMMERCIAL ACTIVITIES

NSW Marine Parks Authority

**Prepared by Roy Powell and Linden Chalmers
Centre for Agricultural and Regional Economics Pty Ltd
ARMIDALE NSW
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EXECUTIVE SUMMARY

The proposal to establish a marine park (MP) in the Batemans Bay region will impact mostly on the Eurobodalla area. This study provides an assessment of the likely economic impacts on the economy in advance of making the zoning arrangements for the MP. That assessment was made for 2005 with an extension to 2015 to check whether there was the possibility of changes in the economy or commercial fishing that might enhance or ameliorate those impacts.

The study involved three main tasks:

1. Developing an understanding of the economic structure and trends in Eurobodalla region economy.
2. Building analytical models that provide information on the economy and can analyse the economic impacts of the changes resulting from the MP proposal and associated zoning arrangements. Input-output models were used for these tasks.
3. Undertaking the economic impact analysis including the analysis of information on how the MP and associated zoning will affect marine-related industries.

Eurobodalla has been a high growth economy over the past two decades and those growth rates are likely to continue. The population has a high proportion of retirees and a low proportion of the population in employment. There is a moderate level of mobility in the workforce with the journey to work data reflecting the preference to live in Eurobodalla and commute to work.

Input output tables have been constructed for 2005 and 2010 using employment projections for each of the 106 industries that take into account previous growth, known and planned developments, and overall industry trends.

Eurobodalla is a small growing economy that represents about 0.3 per cent of the NSW economy. The natural-resource based industries include commercial fishing while farming activities are concentrating on beef cattle. A main force for growth is the rising population of up to 1000 per year. In 2004, there were almost one million visitors representing 2.6m visitor nights and a total expenditure estimated at \$250m. Within these visitors were recreational fishers who were estimated to spend \$20m in the Bermagui and Narooma area in that year and an unknown but higher level in Eurobodalla as a whole.

The population grow and growing visitor numbers drives a large building industry and a rapid expansion of services provided to households and visitors. Services targeted at businesses remain weak. Around 49 per cent of household income is derived from employment so that the dependence

on social welfare payments and superannuation is much higher in Eurobodalla than the average for NSW.

The future development of Eurobodalla is likely to see a continuation of those trends. Visitor numbers continue to grow and the many “baby boomers” approaching retirement will continue to seek apartments and residences in Eurobodalla and add to the need for services. The larger economy is likely to generate opportunities to deepen the economy through manufacturing, transport and business services (such as financial planning) to service local needs.

The MP zoning plan specifies the activities that are permitted in the various zones. The industry most impacted by zoning will be commercial fishing. While recreational fishing is an important economic activity within the MP, it is not expected to be impacted as much as commercial fishing and has not been included in the study. A major task in the study was to estimate the economic impact on the local economy of the reduction in commercial fishing.

To assess the economic impacts on commercial fishing a baseline level of production from commercial fishing was established using data from the NSW Department of Primary Industries (DPI) for both the Batemans Bay/Two-fold Shelf Marine Bioregion and for that portion of the bioregion included in the MP. These data provided a profile of the components that make up the commercial fishing industry. However, it was not possible to develop that profile on a business enterprise basis with the available data. The information that was available suggested that the commercial fishing industry impacts will be limited to those fishing businesses under NSW management with little affect on the Commonwealth managed areas or the operators in those areas that mainly use ports not in Eurobodalla Shire such as Ulladulla and Bermagui.

The fishery has mainly small operators, who are likely to work part time, and use casual employment with a few larger operators in the ocean hauling component. Total employment was not able to be estimated. There were few trends in fishery catch and value apart from the strong growth in ocean hauling in recent years. However, most components experienced large variations in catch and catch value from year to year.

For 2004-05, commercial fishing located in the area was estimated to produce a catch of \$10.6m of which \$5.9m was sourced from the proposed MP area. Abalone, ocean hauling and fish trawl were those with the highest shares of their catch sourced from within the MP area.

Taking account of the flow-on impacts, commercial fishing contributed \$5.4m to the Gross Regional Product (GRP) of Eurobodalla in 2004-05, equivalent to 0.6 per cent of the GRP. The contribution to household income was a less precise calculation because of limited data, but it could be as much as a 1.0 per cent contribution to household income from

employment. In the future up to 2015, it was expected that commercial fishing would remain at about the same level of output, but with the Eurobodalla economy growing by around two per cent per year, commercial fishing's relative contribution to the economy would steadily decline.

The impact of the MP and associated zoning arrangements was modelled from an indicative reduction in commercial fishing. This scenario results in a reduction in catch value of \$1.16m or 19 per cent of the 2005-05 level. These changes were estimated to reduce the Eurobodalla GRP by between \$1.0m in 2004-05 and similar amounts in 2010. The changes are at most 0.1 per cent of the Eurobodalla economy. Some of those impacts will be offset by additional management and operating activities associated with the MP.

Those economic impacts on the Eurobodalla economy of the MP and zoning arrangements are small. They are likely to be even smaller given the buy-back arrangements that protect the household wealth and consumption expenditure of fishers who leave the industry. There may be some concerns about the loss of household income from commercial fishing for households that earn some of their income from commercial fishing as operators or employees. Consideration of these income concerns in the consultations may assist the development of agreement on the zoning arrangements.

Commercial fishing supplies a wide variety of fresh fish to local consumers, restaurants and visitors. This is an attribute that forms part of the attraction of visitors and residents to Eurobodalla. While the reduction in commercial fishing is modest, care should be taken to maintain those perceptions.

ACKNOWLEDGEMENTS

This study has been prepared in collaboration with staff NSW Department of Primary Industries who provided the fishery data. The NSW Department of Environment and Conservation assisted with the analysis and the estimates of displacement of commercial fishing associated with zoning in the MP.

CARE consulted with the Eurobodalla Shire Council and the associated Business Development Board about the economic profile and projections for the Eurobodalla region.

CARE accepts responsibility for the analyses and interpretations included in this report.

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ACRONYMS

ABS	Australian Bureau of Statistics
AFMA	Australian Fisheries Management Authority
ANZSIC	Australian and New Zealand Standard Industrial Classification
DEC	Department of Environment and Conservation
DPI	Department of Primary Industries
GNP	Gross National Product, the measure used by the ABS to total production of an economy.
GRP	Gross Regional Product the regional equivalent of GNP
HES	Household Expenditure Survey
LGA	Local Government Area
LQ	Location Quotient is an indicator of the relative importance of an industry to a region, relative to the importance of that industry to the state or nation.
MP	Marine Park declared under <i>Marine Parks Act 1997</i>
MPA	NSW Marine Parks Authority
PER	Population Employment Ratio, used to measure and compare the level of services delivered to the population
SD	Statistical Division
SWOT	Strengths, Weakness, Opportunities and Threat analysis

1 PURPOSE AND OBJECTIVES OF THE STUDY

1.1 THE BRIEF

The brief sets out the basis for the study (pp 2-3).

The NSW Marine Parks Authority (MPA) wants to obtain information on the economic impact of a possible marine park in the Batemans Bay Bioregion on businesses and households in the study area to assist with marine park planning and management.

NSW marine parks generally feature a zoning system which includes:

- *sanctuary zones, established for biodiversity conservation purposes and excluding extractive activities such as commercial or recreational fishing,*
- *habitat protection zones, where certain commercial and recreational activities are permitted, and*
- *general use zones where certain types of commercial fishing may be prohibited.*
- *special purpose zones may also be declared to for example, accommodate ongoing use of port facilities etc.*

Common commercial activities in marine parks, or using the resources of marine parks, which might be affected by the implementation of a zoning plan (and in particular creation of a sanctuary zone) include:

- *Commercial fishing, including aquaculture and abalone fishing.*
- *(Existing aquaculture use would normally be accommodated within a zoning plan, and future aquaculture can also be accommodated e.g. in the Jervis Bay Marine Park habitat protection within the bay will allow extensive aquaculture up to 2% of the bay (440 hectares). To date intensive aquaculture has been banned from marine parks, but it would not necessarily be precluded from a potential marine park in the Batemans Bay Bioregion). Abalone harvesting is permitted in all zones, except sanctuary zones; it is expected most activity would occur in habitat protection zone;*
- *Fishing charter operators (not permitted in sanctuary zones);*
- *Commercial dive tours (permitted in sanctuary zones);*
- *Whale and dolphin watching charters (permitted in all zones with permits, which may be capped);*

- *Other sight-seeing tours (permitted in sanctuary zones);*
- *Surf schools (permitted in sanctuary zones);*
- *Boat hire (permitted in sanctuary zones);*
- *jet-ski hire and parasailing (may be restricted);*
- *commercial activities requiring a permit.*

Non-commercial or non-market activities include:

- *Recreational fishing (not permitted in sanctuary zones);*
- *Recreational scuba diving and snorkelling (permitted, no fishing rules apply in some zones);*
- *Private boating (permitted in sanctuary zones);*
- *Beach, rocky shore and headland walks(permitted in sanctuary zones);*
- *Surfing (permitted in sanctuary zones);*
- *Camping (permitted);*
- *Research and education (permitted in sanctuary zones; research requires a permit); and*
- *Subsistence and indigenous fishing (not permitted in sanctuary zones; however could be accommodated in Special Purpose Zones).*

The implementation of marine park zoning plans may also affect / protect a range of biophysical functions performed by the natural environments in marine parks (ecosystem services) such as habitat and biodiversity maintenance (including fish stock recruitment and protection); and waste treatment and assimilation.

The principal aim of implementing marine park zoning plans is to protect and enhance marine biodiversity. The implementation of a zoning plan may also affect regional economic activity by directly and indirectly restricting or promoting some of the above commercial and non-commercial activities.

OBJECTIVES OF THE PROJECT

The objectives of this project are:

- *to identify the potential economic impact of the declaration of a possible marine park in the Batemans Bay Bioregion and assumed implementation of a park zoning plan in 2005, on the regional economy of the Eurobodalla Shire / Shoalhaven City Council region in 2005, 2010 and 2015, using input-output analysis;*
- *to incorporate any information provided by DEC (Environment and Conservation Economics Section) on trends influencing the structure of the regional economy of the study area, and to assess the significance of such trends in ameliorating or enhancing the*

potential economic impacts of the proposed marine park on the regional economy.

The following report provides a profile of the Eurobodalla region and its prospective growth through a number of analyses including the preparation of an input-output table for 2005. That table is projected forward using growth estimates to provide a model for 2010 with an extrapolation of the findings to 2015. Information provided by the MPA on the effect of the Marine Park (MP) declaration and zoning plans on commercial activities in the region have been used to analyse the economic impact of those changes on the regional economy using the input-output tables for 2005, 2010 and extrapolated estimates for 2015.

Economic impact analysis is used to determine the size and distribution of the effects of a change on an economy. The distribution effects include identifying industries that may be particularly affected. Assessing the location of the impacts in terms of small local communities is generally not possible in a formal sense with the data and models that are available. Thus, the location impacts are assessed using the information that is available and in a qualitative way.

Information from the economic impact analysis can be used to:

- Inform those potentially impacted about the likely effects of the changes and how the proposals are designed to ameliorate undesirable effects.
- Provide information on alternative ways of implementing the proposals to minimise regional economy impacts and to minimise implementation costs.
- Provide information, along with other analyses, to assess the overall costs and benefits of the proposal.

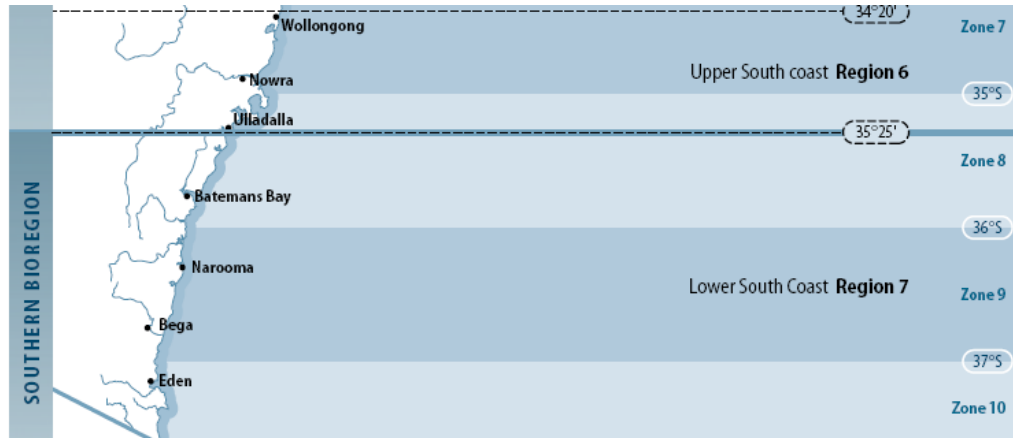
1.2 THE STUDY AREA

The candidate Batemans Bay Bioregion MP is within the Southern Bioregion (Lower Coast Region 7) and is adjacent to Ocean Zones 7 to 9 shown in Figure 1-2. Data about the catch from commercial fishing are reported on the basis of these zones. The economic analysis is based on the region defined as the Eurobodalla Local Government Area (shown on Figure 1-2). While analysis of Shoalhaven is mentioned in the brief, subsequent analysis showed that commercial fishing in the proposed MP area did not include ports in Shoalhaven to a significant extent. Further, the Shoalhaven is a very large economy (relative to Eurobodalla) and any impact of commercial fishing in the proposed MP would be insignificant.

A similar situation applies for the impacts that may spill over into parts of the Bega Valley Shire.

A larger map of this area is shown in Figure 1-2. This indicates the area of interest for the proposed Batemans Bay MP. This runs from the southern part of Shoalhaven Shire along the entire coast of Eurobodalla Shire. The proposed MP will have an economic impact on the commercial fishing industry among other economic impacts. Within this region, the commercial fishing industry includes the estuaries and lakes, the coastal area to three nautical miles under the NSW agency management and the ocean zones beyond three nautical miles under Commonwealth agency management. The coastal strip includes a number of fishing ports that services these fisheries including Ulladulla (to the north of the area of interest) Batemans Bay, Narooma and Bermagui (to the south of the area of interest).

Figure 1-1: Map Showing the Batemans Bay Fishery Zones



The area includes a variety of fisheries in the estuaries and ocean areas with speciality fisheries for lobster and abalone. It is also an area with a substantial aquaculture, almost entirely oyster production. Further discussion of the fisheries and their economic contribution to the region is included in Section 4.

The South Coast is an area favoured by retirees and by visitors. Part of that attraction is the fishing resources for either recreational fishing, for purchase or for consumption through the many restaurants in the region.

1.3 THE STRUCTURE OF THE REPORT

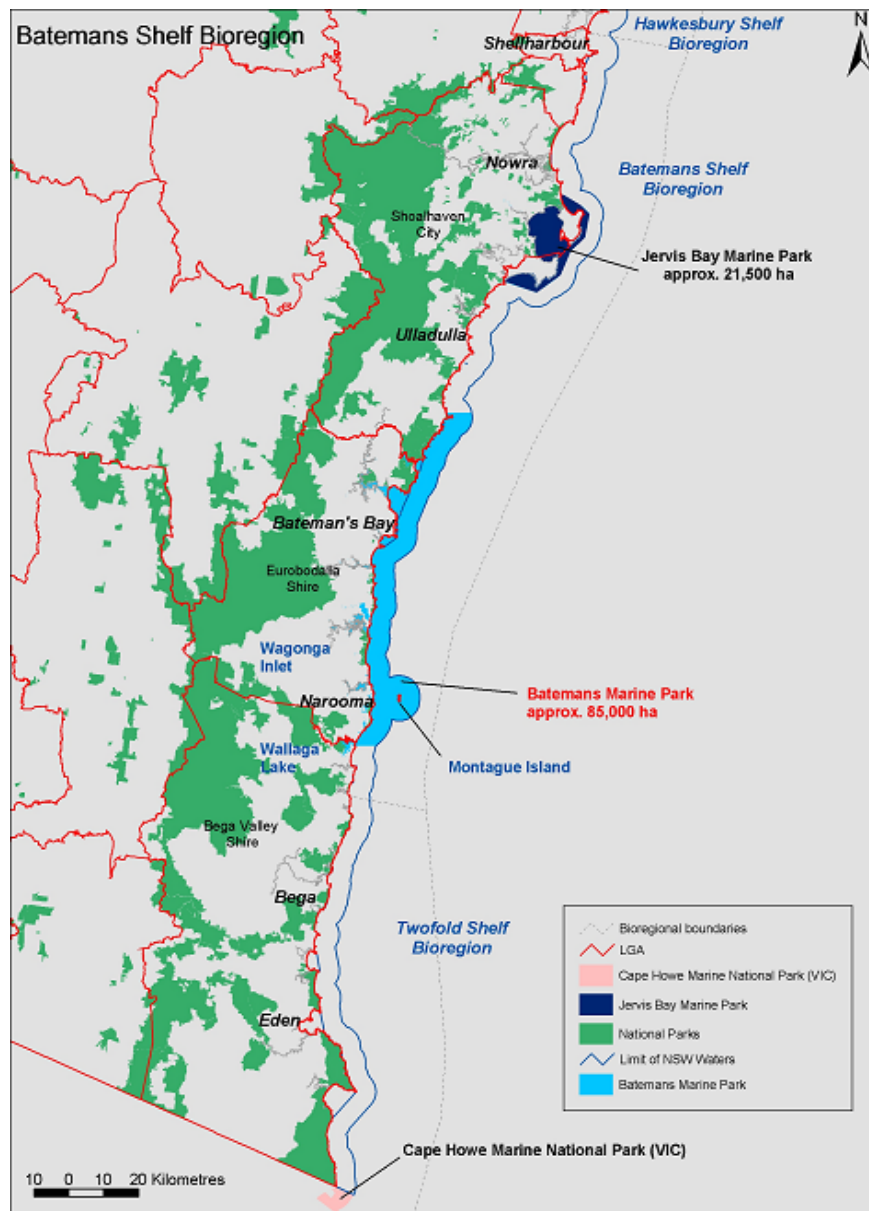
The report is structured around three themes:

- 1 A consideration of the analytical approach to the study and the development of appropriate input-output tables for the analysis.

- 2 The preparation of information on the economic structure and trends in the Eurobodalla region economy.
- 3 The development of information on the way the declaration of the MP and associated zoning will affect economic activity in the Eurobodalla region. This includes both the direct and flow-on impacts on the economy.

The above themes are covered in the following sections. In the final section there is a summary of the findings of the study.

Figure 1-2: Map Showing the Study Region



2 THE APPROACH TO THE STUDY

To undertake this study, there are three main tasks:

- 1 Source and analyse the available data on the Eurobodalla region economy. The focus is on Eurobodalla because the economic impacts of commercial fishing in the MP are concentrated there with only minor effects into the Shoalhaven and Bega Valley Shires.
- 2 Build the required input-output tables.
- 3 Develop information related to the industries affected by the MP proposal, compile that information into formats for the impact analysis and run the impact analysis.

In this section, background and technical information about these steps is provided.

2.1 BUILDING THE PROFILE OF THE EUROBODALLA REGION

CARE has developed an approach to profiling regional economies that is based on analysis of available information that can be readily prepared, identifies key features of the economy and provides some benchmarks with which to compare the region with other regions of the state. The profile was designed to link with the construction of input-output tables and to identify economic characteristics that would form the basis for consideration of economic development strategies. Guidance was provided by the economic structure and performance information that is available from the ABS at the national level – this profile is designed to replicate that information at the regional level.

The information is gathered under three broad headings:

- Selected demographic information
- Economic structure and trends
- Household information and the provision of services.

These headings provide a structure to the discussion of the concepts in this section and the economic information is provided in Section 3. The information presented has been selected because of the relevance of that information to a discussion of the economic structure of the regional economy, its likely economic growth and the possible impacts associated with the creation and zoning of the MP.

2.1.1 Demographic Information

Demographic information is the appropriate starting point and is generally well served every five years through the population census data. Within the considerable amount of demographic data available, the key data are:

- Population, especially the resident population;
- The workforce including employment and unemployment;
- The proportion of the population that is in the workforce;
- The age profile of the population that is related to the workforce, the importance of retirees to the region and the capacity of the region to retain new entrants to the workforce (school leavers); and
- The journey-to-work data that indicates where people work relative to where they live.

All of the above are relevant to the Eurobodalla region and the way the economy functions. The proportion of retirees in the region is high, the unemployment rate is above the NSW average rate, and there is some movement of workers into and out of the region. Overall, the region has attracted a considerable level of in-migration that has made it one of the fastest growth areas in NSW.

2.1.2 Economic structure and industry analysis

Economic structure has many elements with the most important being the industry composition of the economy measured in terms of production, employment and trading patterns between the region and the rest of the world. The broad aggregates are defined in the regional equivalent of the national accounts and the industry structure is defined in an appropriate input-output table.

The available information on economic structure provides an indicator of the strength of the region's economy in terms of the diversity of its industry mix, the growth potential of its industry mix and the income earning capacity of its industry mix. The identification of growing and lagging industries and the reasons behind that performance are a key part of a region SWOT (strengths, weaknesses, opportunities and threats) analysis and a pointer to the development potential of the region economy. In these respects, comparison with other economies is of particular value.

In addition to regional economy information, there is often information about particular industries or activities. The amount of industry information available from the ABS is diminishing with the restructuring of industry surveys but the available information includes agriculture, building and construction, manufacturing and visitor levels.

The Eurobodalla region is a fast growing economy based mainly on services. There is no dominant primary or manufacturing industry in the region. Income from visitors is a significant contributor to the region economy.

2.1.3 Household income and expenditure

Household income and expenditure are critical components of the regional economy and its development. In recent years, rising household consumption has been the main driver of economic growth in Australia generally and in the regions. Information from the ABS population census and the household expenditure survey (HES) are used to compile estimates of household expenditure.

The household income situation has become more complex because there is a multiplicity of employment arrangements, many sources of income from employment and welfare programs, an emerging source of income from the now general superannuation programs and a range of income from investment and business sources. The ABS has made some advances in developing data showing these contributions in recent years.

Household expenditure has also driven the growth in the provision of services to households as well as goods. Some measures have been developed to assess the level of service delivery in regions that can be used in a comparative way to indicate where there is potential for further service industry growth.

The above information is available from existing sources and is adequate in providing an understanding of the Eurobodalla economy. That is presented in section 3. This information highlights the high levels of welfare and retirement income in household income.

2.2 THE INPUT-OUTPUT ANALYTICAL FRAMEWORK

2.2.1 Input-output methods

Input-output models are an established part of the system of national accounts and are integral to the estimation of Gross National Product (GNP). (The detailed tables are published by the ABS (Cat No 5209.0) which includes details of the model, the classification system (shown in Attachment 1) and the relationship to the national accounts.) The input-output tables detail the interindustry trade that occurs among industries in an economy. The tables are constructed on a 'double entry' system that ensures that the supply of product from any industry has to be equal to the

use of the products of that industry including any exports and imports and stock changes.

The input-output table has an important role in describing the economic structure of an economy, in particular the nature and intensity of interindustry trade. A subsistence economy where all business/household entities are self-sufficient will have no interindustry trade. Economic development involves an increase in the level of interindustry trade as businesses and households specialise in the production of goods and services and trade with other entities for the supplies that they need. The consistent development of input-output tables under a set of conventions makes it possible to compare these characteristics of an economy at different points of time and to compare economies in a consistent way. For this study, input-output tables are used to describe the economic structure of the Eurobodalla region economy.

The interindustry linkages are the basis of flow-on effects that occur when one industry has an impact on other industries. Those flow-on impacts will operate through:

- Changes in the demand for inputs by the affected industry, or
- Changes in their production that will impact on the downstream marketers, handlers and users of the product.

The model is structured in a way that it is mathematically possible to estimate those effects through the use of ‘multipliers’. Larger multipliers indicate that there is a high level of interindustry trade among the affected industries. This study is an analytical application of input-output models to estimate the flow-on effects to the regional economy from the activities affected by the declaration of the MP and associated zoning plan.

The multipliers are calculated on the basis of a number of assumptions. The most important are:

- A linearity assumption that implies that any change has proportionate effects throughout the economy so that there are no substitutions among inputs and products. That applies to both inputs used in production and goods and services used in consumption. This assumption may not be critical over a range of types of change and price changes where it takes time to adjust production systems. There is a general concern in that production systems involve a set of fixed costs that do not change in response to short-run adjustments in production. In consumption, the same effect occurs in relation to discretionary and non-discretionary expenditures on goods and services. The estimated multipliers reflect the long-run effects after all of the adjustments have occurred. In that case the linearity assumptions need to be viewed in a context of possible structural changes that may occur in the industry or economy. In this study, the application of the model and the multipliers to commercial fishing is

likely to be appropriate for the fishing industry. Where there are many units of production, adjustments in production are most likely to be from a change in the number of fishing units rather than from changes in the way they operate.

- A set of homogeneity assumptions that mean all of the entities in the specified sectors are the same in terms of production technology, products produced, goods consumed, etc. This is probably the most critical assumption given that the modern economy is comprised of such a multitude of differentiated products and production systems. These are aggregated into 106 sectors or groups that are intended to be similar within those groups. As a result, there is an important initial task in any impact analysis to make an assessment of whether the 'average' structure that appears in the sector to which an industry belongs is appropriate for the analysis. If it is not, then a separate sector needs to be compiled. In this case, specific expenditure data are available for the commercial fishing activities. Within the input-output table, a specific sector for commercial fishing will be constructed to separate it from other fishing activities such as aquaculture.
- There is no consideration of market effects in the input-output model and all results are based on real changes in production of goods and services. There can be a range of price effects that may influence outcomes including changes in input prices, product prices, wages and interest rates. Exchange rate changes may also be an important factor in price changes. For this study, these are not critical issues. The level of production from the Batemans Bay fishery is unlikely to be large enough to cause noticeable market price effects that would need to be considered in assessing the impacts.

The use of input-output models in this analysis is justified in a number of ways.

1. The input-output models can be readily compiled relative to other types of models that include market effects.
2. In assessing regional impacts, many of the industries that will be affected are likely to be a small proportion of the total market for that industry so that any price effects are likely to be small.
3. The analyses can be easily carried out and the tools can be used in ways that allow analysis of variations of the scope of the MP and the way the zoning is implemented.

There are two potential complications that impact on this application of the input-output methods to the Eurobodalla region. The first relates to the seasonality effects of visitors to the region on the analysis. These arise from the use of the detailed employment data from the population census taken in August 2001, which is a low period for visitors. In this case,

estimates of the annual expenditure of visitors were available and were included in the model, thereby capturing these effects at an average annual rate.

The second problem relates to the large number of residents who work in regions away from the region where they reside. The situation is described using the journey-to-work data reported in the next section. The problem is overcome by compiling the tables using employment by workplace data for the interindustry section of the table while the household consumption estimates are based on the resident population. This approach is used in the national tables. However, there is no allowance made for the possibility that the local consumption of residents working outside the region may be less than that of residents that both work and reside in the area.

2.2.2 Constructing the tables

The brief proposes the construction and use of three input-output tables relating to the years 2005, 2010 and 2015. This permits the impact of the MP to be considered in the context of the changes that are occurring in the regional economy.

The region tables are compiled using the GRIT method developed at the University of Queensland and widely applied in Australia for the construction of state and region tables. GRIT is a hybrid method that involves the use of available data combined with computer-based computations to develop the detail of the table. For a description of the method, see West (1990). CARE has used variations of this method over two decades to estimate tables for NSW and for the compilation of tables for regions within NSW.

The major source of data is the ABS and particularly the population census that is the only source of detailed data on employment by industry. As a result, most tables are constructed for population census years, the most recent being for 2000-01. To develop the tables for the Eurobodalla region, a table was first constructed for 2000-01. That was then projected forward to 2005 using data and information on changes that have occurred since 2001. Further projection to 2010 was made using the same general method.

The basis for the projections lies in determining a growth rate for each of the 106 industries in the input-output table – this process is described below. Those employment trends are extrapolated to output trends using output-labour ratios that allow for productivity growth. While this step can be refined to an industry basis, a general rate of productivity growth of 1.2 per cent per year determined by the ABS for recent years has been used. (This rate is consistent with recent estimates that have indicated a slow down in productivity growth over the last few years.)

2.2.3 Projecting growth

The approach is based on a ‘bottom-up’ approach to employment projections developed by making an assessment of the growth prospects for each of the industries that comprise the economy. Those values are then converted into output levels and population levels.

This approach represents a ‘potential growth’ approach that contrasts with approaches based on extrapolating demographic and migration data. These projections are abstracted from the constraints that arise from the existing demographic characteristics, labour shortages etc., some of which can be considered to be of a short-run nature when viewed from a 10-15 year perspective. Internal and external migration can be expected to assist in the adjustment process for any particular area that requires additional workers or has a surplus of workers. There is little doubt that there is considerable mobility in the population and workforce in the South Coast region.

There is also the possibility that there would be changes in the working habits of existing residents. These include adjustments in the proportion of adults participating in the workforce, hours worked including taking second jobs, work undertaken by children and elderly people and so on. In this context, note that regional economies have a much larger contribution to economic activity from owner-operator businesses. One of the strengths of those businesses is the flexibility they have in terms of working conditions, hours, location and structure of work. For example, increased business activity might be accommodated by family members working longer hours and at times members may take full or part-time employment away from the business, etc.

An example of the considerable flexibility that exists in regional employment is the extent to which employment shifts between industries over an intercensal period (see the shift-share analysis of employment change in Section 3). The considerable adjustments among industries have been observed in most regions over the past 20 years. The journey to work analysis also indicates that a number of people are commuting across local government boundaries to their place of work.

What this means is that if there is a basis for an increase in economic activity and employment in a regional area such as Eurobodalla, it is likely to occur irrespective of the constraints on the local population such as low growth, full employment, ageing or whatever. A variety of adjustments will occur that will see total employment increase in spite of national conditions being in a ‘full employment’ situation. The Eurobodalla area has attracted internal immigrants in the past which is likely to continue. Relatively high unemployment levels also provide some added employment potential as do some retirees who may be able to undertake some work in times of high employment levels in NSW and nationally. Thus, it is valid to build a scenario of the future for Eurobodalla based on the potential growth that could occur.

That potential needs to take into account trends and prospects in all of the industries that comprise the local economy. The CARE approach is to work with the 106 sectors or industries that are specified in the national input-output tables based on the ANZSIC system. The main steps in this process are:

1. Examine past trends in the employment in each of the industries – normally spanning the population censuses from 1981 to 2001. In a sense, these past trends can be used to indicate future trends if there is a good reason to believe that they will continue.
2. Consider information about industries that is indicative of the overall rate of growth or decline in those industries. This can then be used to assess the capacity of the local area to share in that growth or decline.
3. Consider local developments, local needs and the local resource base to identify proposed and possible new local initiatives. The opportunity to gather information and opinion from key local people and agencies is also valuable in this step.
4. Compile a draft set of estimates of employment growth and review them in terms of consistency. A review by staff at the Eurobodalla Council has also proved to be useful.

The near future is much easier to assess relative to 15 years hence when the business entrepreneurs in the local area will be different, new products and services will appear, the potential natural resources base will be reassessed and market conditions may be markedly different. However, there is some justification in the point that there is a tendency for established trends to continue because of the influence of those trends on the perceptions and actions of decision makers on their business operation and development. For example, strong growth tends to attract attention, and more decision makers seek to be part of that growth and so the economy tends to keep on growing, sometimes at an increasing rate.

To finalise the estimates, the projected population employment ratios (PER) were calculated for 2005 and 2010 as a check that these ratios were moving in the expected way. This led to some small adjustments to some projections in both years. Those adjustments involved some slowing in the growth in retail employment in both years, road transport in 2005 and in residential building, motor repairs, community care and libraries etc. These adjustments were made as it seemed that the projected levels were too high relative to the NSW PER, and to allow for some slowing of the rate of growth between 2005 and 2010.

The projected growth from 2001 to 2005 and 2005 to 2010 are detailed in Attachment 2. A summary of the projected change is indicated in Table 2-1. The estimates are used to construct projected input-output tables for 2005 and 2010.

In compiling these projections, the past growth trends have been based on employment by industry on a residence basis because the equivalent workplace data were not available. This will produce some distortions to the workplace data particularly where there are large numbers commuting to work elsewhere and if that is not a consistent proportion over time. This is not likely to be a major distortion in the case of Eurobodalla.

Table 2-1: Summary of Projections of Employment and Population

Measure	2001	2005	2010
Eurobodalla			
Total cumulative annual growth rate to (%)	2.9	2.8	3.49
Employment – workplace (no)	9,999	11,185	13,007
Employment share of population (%)	31	32.5	34
Estimated population (no)	32,254	34,424	38,900
DIPNR 2011 (no)			40,310

The Eurobodalla region is projected to increase employment by 11.2 per cent over the 2001 to 2005 and to 13,007 in 2010 – a further increase of 16 per cent. This is employment within the region (by workplace). That is translated into an estimate of population using the ratio of the employment to population which increases slightly in Eurobodalla from 31 per cent to 34 per cent in 2010. That results in a combined population of almost 39,000 people (2010). It is similar to that projected by DIPNR (2004) for 2011 of 40,310.

The projections are broadly reflecting an on-going high rate of business growth and employment in Eurobodalla based on in-migration, growth in visitors and some deepening of the local economy as it attains further population thresholds. The large number of baby boomers approaching retirement should maintain or increase the level of in-migrants to this area.

This growth will continue trends from the past, but will allow for some further diversification of the economy. It also allows for a strengthening of the growth to 2010. Over this time, it is likely that more of the residents of Eurobodalla will commute to work in other areas taking advantage of the growing flexibility in employment arrangements.

The ‘bottom up’ estimates of the population in Eurobodalla shown in Table 2-1 are similar to the ‘top down’ estimates prepared by DIPNR. All of the evidence and trends point to continued strong growth and further diversification of the region economy over the period up to 2015. A continuation of the relatively high growth in the national economy would support that growth. Improvements in the transport infrastructure on the South Coast and the further development of health services will add to the attractiveness of Eurobodalla.

2.3 THE PROPOSED MARINE PARK AND ZONING

2.3.1 Implementation

The declaration of a MP is based on a bioregional assessment of ecosystem values and precedes an intensive consultation and planning process leading to the development of a zone plan for the area. The zones can include:

- Sanctuary zones which are established for biodiversity conservation purposes and exclude extractive activities.
- Habitat protection zones where low impact activities take place, including some commercial and a number of recreational activities including recreational fishing.
- General use zones where most commercial and recreational activities are permitted.
- Special purpose zones to accommodate particular needs such as management of port facilities.

The determination of these zones will occur during 2006 and will involve intensive consultation with the community and affected industries. Once the zoning plan is approved, then the program to buy back commercial fishing licences will begin, most likely in 2006-07. The net result is that the adjustments to various industries and the operation of the MP will begin in 2006-07 and be fully developed within one to two years.

2.3.2 The Impacted Industries

At this time, it is anticipated that the main economic impacts will be on the level of commercial fishing activity permitted in the MP. There may be economic impacts on a range of recreational activities such as boating, diving, recreational fishing and whale and dolphin watching if the existence of the MP enhances the perceived value of these attractions to visitors. Evidence from existing MPs do point to rising levels of satisfaction among non-extractive uses of the MP once it is established noting the value of the pristine environment, the diverse habitat and the absence of commercial fishing. Recreational fishing may increase as a result of possible improvement in the catch (size, variety and stock) following zoning.

The operation of the MP will entail some additional employment in the planning period and on-going management of the MP. That is expected to involve seven people in on-going management with a total expenditure beginning at \$1.2m rising to around \$1.4m p.a. (not including buy-back funding). These impacts will be a positive for the region.

Most public and industry concern about economic impacts will be related to the effects on commercial fishing, which is the main focus of this impact analysis. The existence and impact of any displaced recreational fishing is uncertain and has not been included in this study. The analysis includes the planning and operating activities associated with the MP. In the absence of a basis for determining the effect of the MP on visitation and related activities, it is anticipated that those activities will continue to change in line with established trends. Those effects are included in the projected input-output tables and are not part of the MP impact assessment. In the analysis of the impact estimates where judgement is needed, conservative values have been used so that the estimated impacts will tend to be high rather than low.

2.4 SUMMARY

The approach to the study is outlined in this section. The first part of the work involves developing an understanding of the Eurobodalla region economy and the trends within the economy. This is built from available data and associated analyses. There is a focus on demographic information including population and employment. Two important features of this region are the ageing of the population and the high mobility of those in the workforce as indicated by the journey to work data.

The economic structure of the region is highlighted by analyses of the employment by industry data. These indicate the varying rates of growth among local industries and form the basis for building projections about future growth. The analysis also focuses on the income and expenditure of households that is an important part of the regional economy. This information is also critical for the construction of the input-output models for the region.

The required input-output models are specified in the brief. The construction of those models is structured to make use of the available data and to follow the principles used by the ABS in constructing the national table. The discussion outlines the method of construction and the appropriateness of the method for this study. The building of the projected tables is also outlined based on estimates of growth for each of the 106 industries shown in the table. The estimates take into account previous growth, known and planned developments, and information about overall industry trends in the NSW and the Eurobodalla economy.

The implementation of the MP and how it impacts on industry is outlined in the final part of this section. The MP will be implemented through a zone plan that determines the activities that are permitted in the various zones. The zone arrangements are critical but the most impacted industry will be commercial fishing because some areas will exclude commercial fishing operations. The impacts on visitation to the area may be enhanced if there is an improvement in the attractiveness for marine-based recreation

activities (such as whale watching, scuba diving and recreational fishing). The emerging experience from existing MPs is that these activities are at least maintained and will probably be enhanced. The extent of that enhancement is still difficult to assess and so an assumption of no change to existing trends may be a conservative assumption. Consideration is also given to the activities of the MPA in planning and operating the MP.

3 OVERVIEW OF THE EUROBODALLA REGION

The Eurobodalla LGA is the area that is most likely to be impacted by the proposed MP as this area where most activities in the MP are based. Only small impacts will occur in the Shoalhaven and Bega Valley LGAs. Although there is potential for Eurobodalla to service offshore fishing managed by the Federal Government through the Australian Fisheries Management Authority (AFMA), most of those operators are using ports outside of Eurobodalla. Thus, the focus is on Eurobodalla.

This profile is constructed from data from several sources but primarily from the 2001 population census. However, in providing quantitative data on the economy, estimates have been projected for 2005 in the form of an input-output table as described earlier. That has taken into account the growth that appears to have occurred since the 2001 population census. Those estimates are distinguished by being dated 2005.

Eurobodalla is an area that has experienced high growth of population and high levels of unemployment. There is not single primary or manufacturing industry that is prominent in the region so it appears to be growing on the basis of its attractiveness as a place to live and to visit. It is also linked to Canberra via the Kings Highway, and it is likely that a significant number of visitors and retirees come from that source.

In this overview of the region, these variable attributes are considered and analysed to provide a context in which to view the creation of a MP and associated zonal arrangements. That context is represented in terms of a description of the regional economy as of now (approximating 2005) and what it might be in five and ten years time. This serves to indicate:

- The likely economic impact of the MP declaration on the existing economy; and
- The impact over the next ten years taking into account the growth in the economy and the changes induced by the MP declaration and zonal arrangements.

3.1 KEY DEMOGRAPHICS

3.1.1 Population and Employment

The trends in population and employment as recorded in the population censuses are shown in Table 3-1. Eurobodalla is notable for:

- Continuous population growth over the years since 1976 at rates that are among the highest in NSW. These rates have been lower in the 1990s.
- Employment has been rising throughout the period at high rates. It is notable that in the late 1990s, employment grew at twice the population resulting in a rise in the proportion of the population employed. The early 1990s was a period of slower growth in employment throughout NSW as a result of Federal Government policy to slow economic growth and widespread drought conditions over much of NSW.
- The proportion of the population that is in employment is among the lowest in NSW. This reflects a large number of unemployed in the workforce and a large number of retirees. The 2001 percentage of the population in employment of 31 per cent compared with 43 per cent for NSW as a whole.

Table 3-1: Population and Employment Trends, Eurobodalla

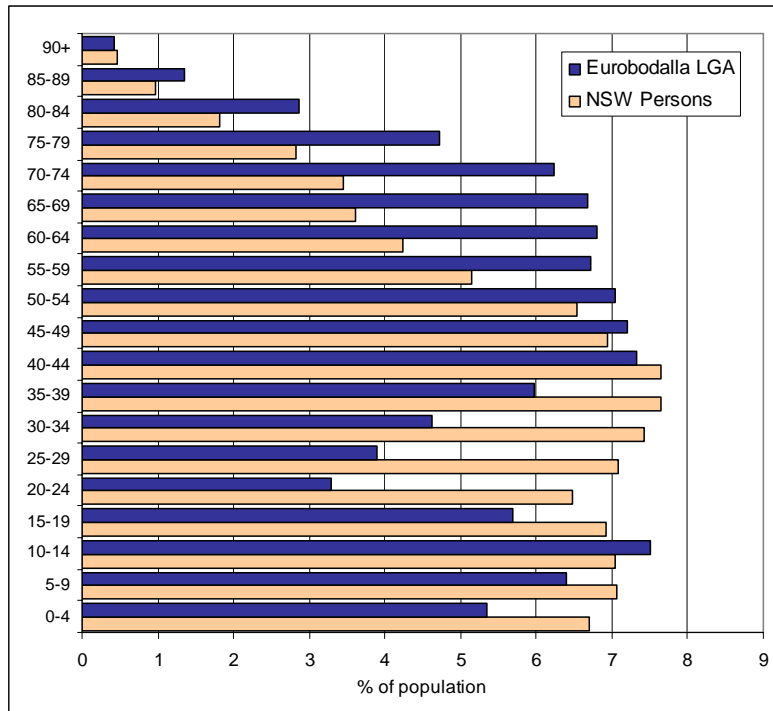
Census Year	Total Employment	Total Population	Employment Share of Population	Average Annual Change Between Census Years	
				Employment	Population
			%	%	%
1976		11,650			
1981	5,355	16,000	33.5		6.55
1986	6,505	21,150	30.8	3.97	5.74
1991	8,121	26,900	30.2	4.54	4.93
1996	8,850	30,433	29.1	1.73	2.50
2001	10,189	32,633	31.2	2.86	1.41

Source: ABS Population Census.

3.1.2 Age Profile

An important characteristic of Eurobodalla is the age profile of the population as shown in Figure 3-1. This indicates the profile for Eurobodalla compared with NSW as a whole. The overall ageing of the population is reflected in the lower shares in the 20 and 30 years age groups relative to those age groups that are approaching retirement. Eurobodalla is substantially different from that for NSW with a much more pronounced deficiency in the 20 to 39 age groups and higher proportions in all age groups from 45 onwards. However, there is a significant proportion in the 10 to 14 years group where the share exceeds that for NSW as a whole.

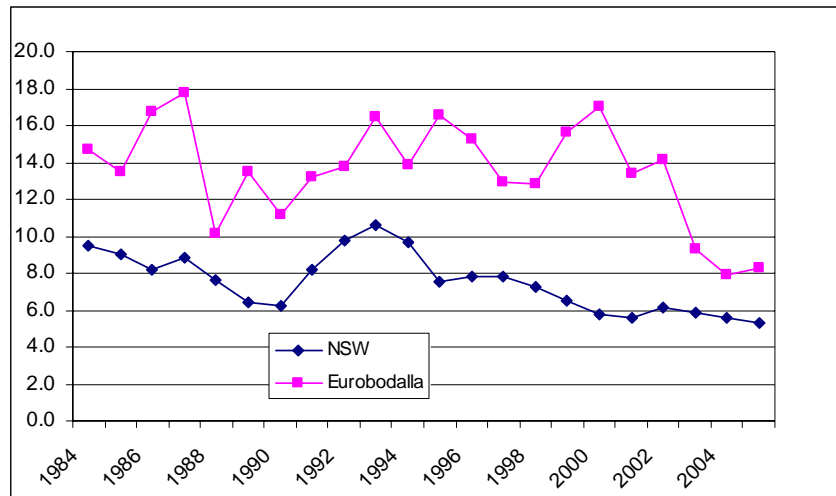
Figure 3-1: Age Profile of the Population, Eurobodalla



3.1.3 Employment

An alternate perspective on employment and unemployment is provided from the data prepared from unemployment data and information from the labour force survey. These data make it possible to estimate the size of the labour force and shows the level and percentage of the labour force that is unemployed. These estimates are shown in Table 3-2 using the June quarter data. These estimates are of lower quality than those from the population census. However, they do permit a consideration of annual estimates and a comparison of the unemployment rate with that for NSW. These data indicate strong growth in employment for most of the period.

The unemployment rate in Eurobodalla is considerably higher than the rate for NSW for the whole period and has been among the highest in NSW. There has been a significant fall in 2005 to a single digit level, but it is still well above the NSW unemployment rate. These trends are also shown graphically in Figure 3-2 and show a higher level of variability in the rate over the period compared to NSW.

Figure 3-2: Unemployment Rates, Eurobodalla and NSW (%)**Table 3-2: Employment and Unemployment, Eurobodalla**

Year	Labour Force	Derived Employment	Unemployment		NSW
	no.	no.	no	%	%
1984	6,925	5,907	1,018	14.7	9.5
1985	6,919	5,985	934	13.5	9.0
1986	7,395	6,160	1,235	16.7	8.2
1987	7,022	5,772	1,250	17.8	8.8
1988	8,960	8,055	905	10.1	7.6
1989	9,319	8,061	1,258	13.5	6.4
1990	9,250	8,214	1,036	11.2	6.2
1991	8,477	7,358	1,119	13.2	8.2
1992	9,674	8,339	1,335	13.8	9.8
1993	10,418	8,699	1,719	16.5	10.6
1994	10,554	9,087	1,467	13.9	9.7
1995	10,657	8,888	1,769	16.6	7.5
1996	11,065	9,372	1,693	15.3	7.8
1997	11,465	9,986	1,479	12.9	7.8
1998	11,297	9,851	1,446	12.8	7.3
1999	10,840	9,149	1,691	15.6	6.5
2000	10,906	9,052	1,854	17.0	5.8
2001	9,828	8,511	1,317	13.4	5.6
2002	11,773	10,113	1,660	14.1	6.1
2003	14,000	12,698	1,302	9.3	5.9
2004	13,668	12,584	1,084	7.9	5.6
2005	13,372	12,263	1,109	8.3	5.3

Source: DEET(2005)

The trends in employment by industry are shown in Table 3-3. There have been small changes in employment in all categories other than services which have increased from 65 per cent of employment to 78 per cent. The share of employment in primary industries has declined most reflecting the

long-term structural adjustment to larger properties, a switch from dairy to beef cattle and increased use of non-land capital. There have also been adjustments to forestry following the Regional Forest Agreement and the dairy industry following dairy deregulation. A similar trend toward lower employment has also occurred in the fishing industry. In the 1990s there has been a small rise in manufacturing employment in Eurobodalla. Employment in building and utilities has been growing reflecting the high growth in population but slowed in the early 1990s recession.

Table 3-3: Industry Composition of Employment, Eurobodalla

Industry Group	1981	1986	1991	1996	2001
Primary Industries	600	615	537	536	480
Manufacturing	510	480	546	637	674
Building/Utilities	780	857	1055	862	1068
Services	3465	4553	5983	6815	7967
Total	5355	6505	8121	8850	10189

3.1.4 The Journey to Work Patterns

The growing flexibility in employment arrangements and the development of improved transport and communications systems provides opportunities for many people to consider where they live with an increasing independence from where they work. Thus, more people can make a choice of where they live on the basis of their personal and lifestyle objectives and trade that off against the commuting that may be involved. Thus, for many regions there is a significant and growing level of commuting to work across LGA boundaries.

The journey to work information for Eurobodalla is available for broad industry categories and for a selection of neighbouring LGAs and regions. The results are summarised in Table 3-4. This table is based on two data sets that show where the residents of Eurobodalla work and where those working in Eurobodalla reside. For Eurobodalla, there is a net outmigration of workers to other areas.

The main points from this summary are:

- 88 per cent of Eurobodalla residents work in Eurobodalla.
- There is a net outflow of 690 workers to other areas.
- There is a flow of 90 residents to jobs in Bega Valley LGA, 90 to the ACT and 54 to Shoalhaven LGA.
- There are 856 Eurobodalla residents working in NSW outside of the Illawarra and South Eastern SDs; this may include a significant number working in Sydney.
- Of the workers commuting in, most came from the Balance of NSW (180) Shoalhaven LGA (125) and Bega Valley (91).

Table 3-4: Journey to Work Summary

Locality	Where Eurobodalla residents work		Where Eurobodalla workers reside		Net commuting out
	Number	Per cent	Number	Per cent	
Shoalhaven	54	0.6	125	1.4	-71
Balance Illawarra SD	17	0.2	24	0.3	-7
Bega Valley	90	0.9	91	1.0	-1
Balance South East SD	58	0.6	30	0.3	28
Balance NSW	856	8.8	180	2.0	676
ACT	90	0.9	12	0.1	78
Other States		0.0	13	0.1	-13
Total Commuters	1165	11.9	475	5.2	690
Eurobodalla	8612	88.1	8612	94.8	
Total	9777		9087		

The industry composition tables shown in Attachment 4 indicate that most of the workers commuting to jobs elsewhere were working in construction (363) with significant numbers in health and community care, property and business services, retail trade and personal services. There are some residents working outside of Eurobodalla in all industries. This presents a picture that Eurobodalla is a significant centre for building and construction, and is a desirable place to live. Examples of emerging possibilities include those industries that permit workers to work in blocks of time and have blocks of time off (eg. mining industries) while the development of telecommunications allows more time working at home rather than attending the 'office' every day.

The industry composition of those commuting in shows that most are working in retail trade, health and community services, construction, and accommodation and restaurants. It is likely that some of this commuting is females from surrounding rural areas and professionals finding employment in larger coastal centres. However, for most industries, there are sufficient Eurobodalla residents to supply the employment requirements. This is indicated by the data shown in Table 3-5 where retail trade is the only industry with a net flow of workers into Eurobodalla.

The implication of the journey to work patterns is that Eurobodalla has some households that earn part of their income from outside the region. This is a net boost to the Eurobodalla economy given that a large part of those earnings will normally be spent where the household is located. In terms of 2001 data, with a net 690 people working outside Eurobodalla and earning an average \$24,000 per year, then that adds \$18m to household income.

With further development in employment arrangements and improvements in transport infrastructure, it is possible that Eurobodalla may be the residence of many more workers that have jobs in surrounding LGAs. That will help to maintain the continuing growth of the residential population.

Table 3-5: Net Commuting by Industry

Industry	Total Commuters out	Total Commuters In	Net Commuters
Agriculture Forestry Fishing	65	39	26
Mining	3	0	3
Manufacturing	72	41	31
Electrcy Gas Water Supply	6	0	6
Construction	363	51	312
Wholesale Trade	29	10	19
Retail Trade	79	100	-21
Accom. Cafes Restaurants	53	45	8
Transport & Storage	44	13	31
Communication Services	24	6	18
Finance & Insurance	28	12	16
Property, Business Services	84	28	56
Government Admin, Defence	62	15	47
Education	48	33	15
Health, Community Services	97	64	33
Cultural, Rectrlal Services	32	7	25
Personal, Other Services	69	11	58
Non-classifiable economic units	7	0	7
Not stated	0	0	0
TOTAL	1165	475	690

3.2 THE EUROBODALLA INPUT-OUTPUT TABLE

The input-output table for Eurobodalla is shown in an aggregated form in Table 3-6 and in Figure 3-3. The economic structure of Eurobodalla can be compared with that for NSW as a whole as shown in Figure 3-4.

Table 3-6: Aggregated Input-Output Table, Eurobodalla, 2005

	Ag Forestry Fishing	Mining	Manufacturing	Utilities	Building	Trade Acommodati on	Business Services	Public Personal Services	TOTAL	H-hold Exp	O.F.D	Exports	Total
Ag/Forest/Fish	2296	1	6870	1	53	4350	44	256	13871	2728	7134	15504	39237
Mining	24	32	673	42	1172	234	133	298	2609	55	253	808	3725
Manufacturing	1367	143	17965	310	25369	16265	5699	5055	72173	31424	6784	29765	140146
Utilities	206	3	807	1122	237	3269	2198	1619	9461	10614	670	408	21153
Building	49	9	16	9	116	846	2978	146	4168	0	151963	26112	182243
Trade/Accommodati	3028	254	5634	592	8620	16313	10557	7420	52418	190689	9397	181379	433883
Business Svcs	1989	436	10615	1275	17922	62465	56834	20386	171922	157971	13187	6407	349487
Public/Personal Svcs	207	57	881	103	453	5542	4027	10991	22261	83441	159887	16364	281953
TOTAL	9165	936	43462	3454	53943	109283	82471	46170	348884	476922	349275	276746	1451827
H-hold Income	11102	258	19297	3666	32689	85332	38773	105842	296960	0	0		296960
O.V.A.	5093	1565	20167	8882	50257	110155	177173	82477	455770	109478	9950		575198
Imports	13877	966	57219	5151	45353	129113	51069	47463	350213	222029	67942		640185
TOTAL	39237	3725	140146	21153	182243	433883	349487	281953	1451827	808430	427167	276746	2964170
Employment	447	8	703	76	1125	4100	1421	3305	11185				

The key characteristics of the 2005 Eurobodalla economy are as follows:

Gross Regional Product (GRP) \$872m

Gross Regional Product per person employed \$77,976

Exports from Eurobodalla \$276m (32 % of GRP)

Imports to Eurobodalla	\$640m (73 % of GRP)
Number employed	11,185
Average earnings from employment	\$26,550
Household income from employment	\$242m
Household expenditure	\$808m

The projected Eurobodalla economy to 2005 is 0.3 per cent of the NSW economy with a Gross Regional Product of \$872m. In developing these projections for 2005 relative to 2000-01, there has been an expansion of the region economy arising from:

- Growth in employment from 9,993 to 11,185;
- Improved productivity at 1.5 per cent per year; and
- Improved estimates of expenditure by visitors to the region that has resulted in higher expenditures and exports (exports, which are mostly services, have increased from 20 per cent of GRP to 32 per cent).

These estimates provide some important information about the structure of regional economies in comparison with State and National economies that are discussed below.

Small economies generally have a much lower level of industry diversification than larger economies. As a result, the regional economies are normally more dependent on accessing extra-regional markets for the main products that they produce and the supplies that they need than do large economies such as NSW. Eurobodalla has relatively few (primary and manufacturing) exports to other markets so that they comprise 32 per cent of GRP while exports are 36 per cent of the NSW economy. On the other hand imports are 73 per cent of GRP for Eurobodalla compared with 45 per cent in NSW.

The workplace based employment level shown in the input-output table is lower than the residence-based employment because there is a net 690 commuting from Eurobodalla to surrounding areas (Table 3-4). The earnings of those commuting out to work are not included in the input-output table. This will lead to an underestimation of the level of income accruing to households from employment (estimated at average earnings to be about \$18m).

3.2.1 Household income and expenditure

The Eurobodalla economy has a very large gap between household earnings from employment and household expenditure on consumption. To some extent, this reflects a national trend in household income and expenditure patterns where net savings are low. Information from the Reserve Bank of Australia indicates that the sources of household income on a national basis are as follows:

Employment earnings	55 per cent
Mixed sources	10 per cent
Social welfare benefits	12 per cent
Other	23 per cent

The ABS has recently prepared data on personal income based on population census and taxation data. The results for Eurobodalla and NSW in 2000-01 are shown in Table 3-7. These indicate a share of wage and salary income for Eurobodalla lower than the national average indicated by the Reserve Bank and a larger share for government benefits and most other income sources.

Table 3-7: Estimates of Personal Income, Eurobodalla, 2000-01

Income Component	Income Estimate, Eurobodalla		NSW Total
	\$	% of total	% of total
Wages and salaries	238.8	48.8	71.9
Unincorporated business	45.1	9.2	6.3
Investment	48.8	10.0	8.7
Superannuation	38.8	8.0	2.1
Government benefits	115.1	23.5	10.0
Other income	5.7	1.2	0.9
Total income	492.3	100	100
Net tax paid	72.7	14.9	22.6
Household disposable income	419.6	85.12	77.4

Source: ABS (2004)

Data from Bray and Mudd (1998) based on census and other data from 1996, indicated that Federal Government social welfare benefits amounted to 25 per cent of estimated household income. There appears to have been a relative decline in net benefits paid since 1996. This may reflect lower levels of unemployment and some growth associated with deepening of the economy as it becomes larger.

The contribution of superannuation is quite high relative to NSW and other areas and may be a reflection of the importance of retired Federal Government employees who have had access to substantial superannuation

programs. This source of income will rise in future given the ageing of the population and the more general access to some form of superannuation.

Relative to NSW, the regions have a larger share of income from unincorporated businesses, investment income and welfare payments. They also pay a smaller share of their income as income tax, but that reflects the lower level of household disposable income: Eurobodalla at \$612 per week compared to the NSW average of \$895 per week (2001).

The input-output tables constructed by CARE include those earnings that are derived from employment plus an imputed wage to self-employed persons equivalent to the average earnings in that sector (part of gross operating surplus). The estimate of \$314m (\$296m from local work and \$18m from commuters) for 2005 can be compared with \$284m (total of wages and salaries and all of unincorporated business) for 2000-01 shown in Table 3-7. The estimated household income from employment appears to be conservative given the growth that has occurred over 2001 to 2005.

The estimated household disposable income of \$420m (Table 3-7) was 1.76 times the earning from wages and salaries in 2000-01. Applying that ratio to the estimated wage and salary earnings in 2005 gives an estimated household disposable income of \$523m. This value is 65 per cent of the estimated household expenditure of \$808m in 2005.

The differences between the income and expenditure of households are not able to be accounted for precisely due to gaps in the data. However, the factors include:

- The input-output table includes \$126m as the payments (both imputed and actual rentals) for ownership of dwellings with the imputed component included in the \$808m estimate of household expenditure. This factor will be larger the higher the level of home ownership.
- The seasonal effects associated with visitation and population in the region. This will depend on how well the population recorded in August will represent the average population over the whole year.
- Any household consumption expenditure that is made from dissaving by households or from borrowing. We do know that over the 2001 to 2005 period, borrowings by households increased rapidly. Further, with a high proportion of the population in retirement, this will tend to boost the level of dissaving.
- Earnings from outside the region such as those who commute to other areas to work. That factor may be growing in importance as more people do it and the jobs that they travel to may have earnings above the average indicated for Eurobodalla (which is well below the NSW average).

While it is not possible to reconcile the household income and expenditure estimates fully, household expenditure in the input-output table appears to be broadly compatible with the ABS estimates of household disposable income from 2001. However, more recent estimates will be needed to make a more precise assessment of the projections included in this report.

Eurobodalla is more heavily dependent on earnings from non-employment sources (social welfare payments and superannuation) than the NSW and national level. Any changes in those income sources will impact on the performance of the Eurobodalla economy. It seems likely that this factor will continue to be important in the future growth of Eurobodalla.

3.2.2 Industry Structure

Employment is the major source of household income for Eurobodalla. The opportunities for employment growth are examined in the material that follows. A comparison of the Eurobodalla economy with that of NSW is available in Figure 3-3 and Figure 3-4. The key differences are:

- Similar dependence on agriculture, forestry and fishing to that of NSW and with very little local manufacturing based on primary production. Commercial fishing is an important primary activity.
- The low contribution of mining and utilities to the Eurobodalla economy.
- Eurobodalla growth has been based around population increases and growth in visitors resulting in a high level of building activity.

Figure 3-3: Aggregated Industry Structure, Eurobodalla, 2005

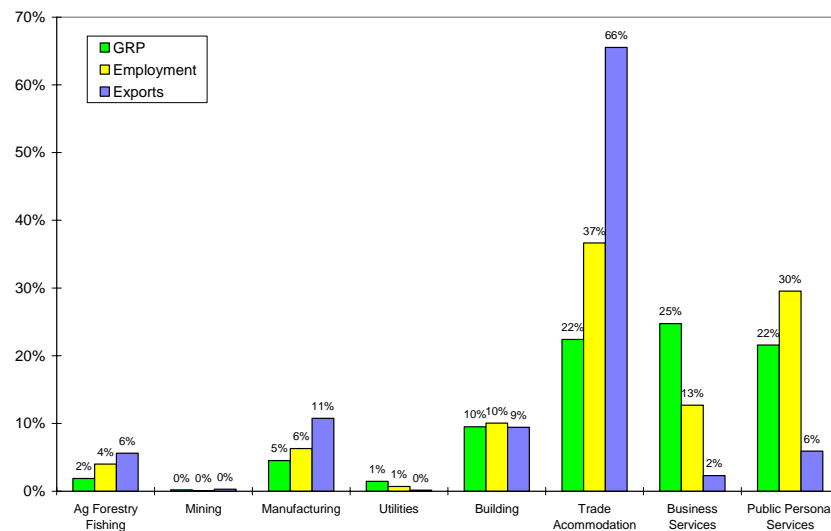
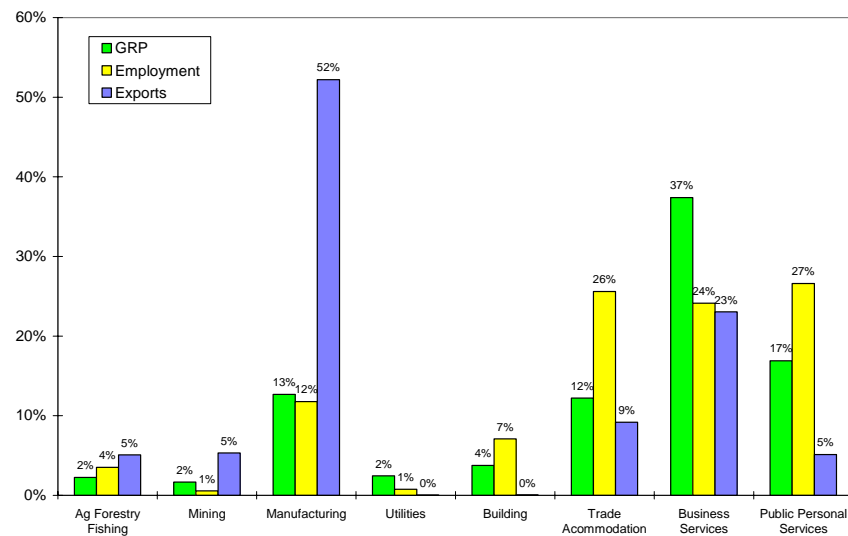


Figure 3-4; Aggregated Industry Structure, NSW – 2000-01

- The role of trade and accommodation, and public and personal services are relatively more important in Eurobodalla than in NSW.
- The contribution of business services (transport, finance, IT, property, etc) in Eurobodalla is very much lower than in NSW.

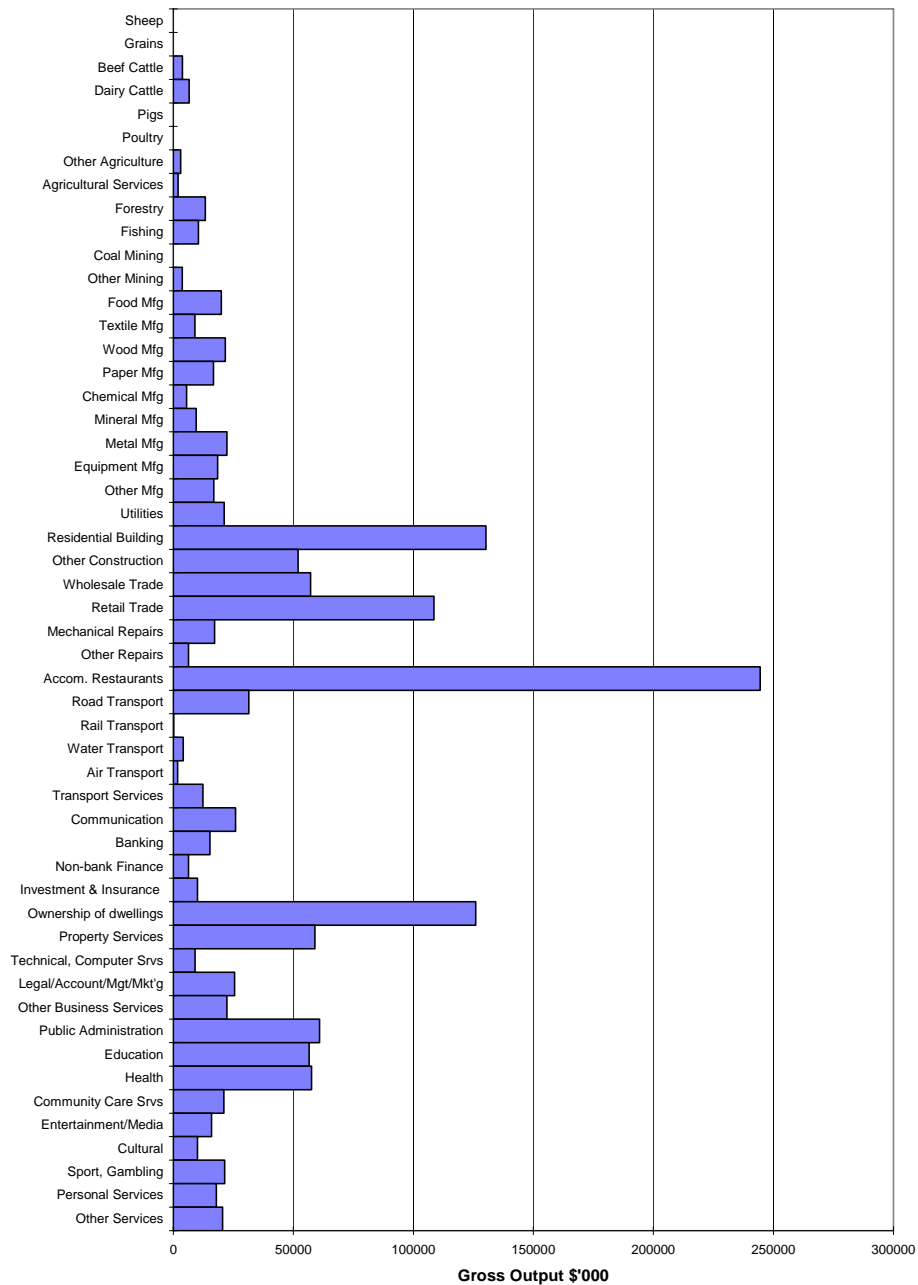
The Eurobodalla economy has low levels of primary industries production and related processing. On the other hand there is a high level of development of the service industries to serve a growing number of visitors and residents. There is a low development of business-related services.

There are some manufactured exports built on a small number of businesses producing specialised products for national markets. These include transportable homes and cabins and off-road campers. Some wood products are also exported.

A detailed industry composition of the Eurobodalla economy in 2005 is shown in Figure 3-5 through Figure 3-8, based on data shown in Attachment 2. The charts highlight key characteristics of the economy.

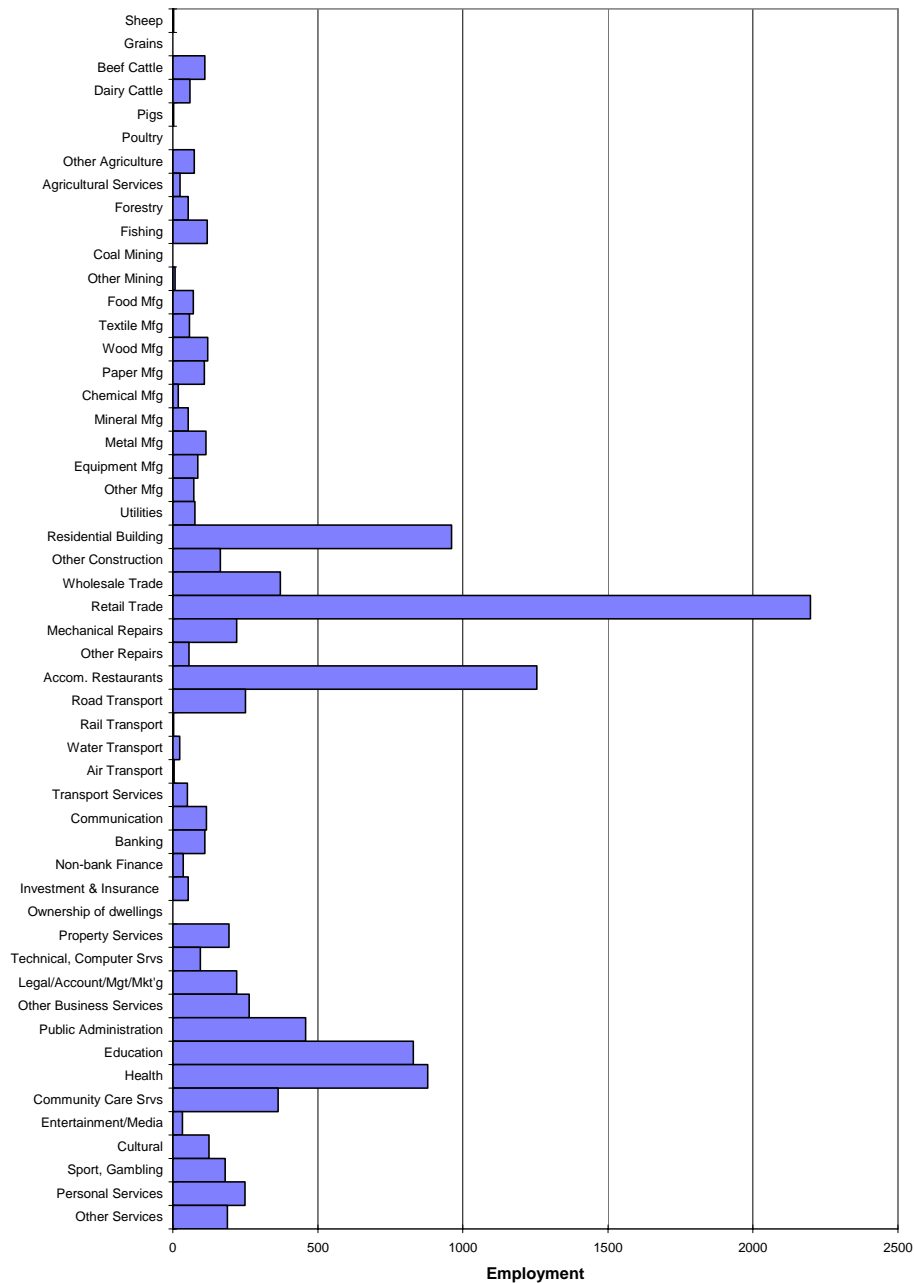
In Figure 3-5, which shows the industry composition of gross output, the notable characteristic is the lack of any dominant industry among the primary and manufacturing industries – that is unusual for regional economies. The dominant activities relate to the provision of accommodation and restaurant services, and retail trade, related to the large number of visitors to the region. Home ownership is notable, followed by a range of service industries that are focused on providing for the population and visitors. Residential building is also significant, although some of that may be occurring through workers in adjoining regions such as in Ulladulla, Nowra and Bermagui in addition to some exports.

Figure 3-5: Industry Composition of Gross Output, Eurobodalla, 2005



The industry composition of employment (number employed and not adjusted for hour worked, etc.) shown in Figure 3-6 further reinforces the lack of primary and manufacturing industries. The structure reflects the high proportion of aged dependents in Eurobodalla economy and the many visitors. While there are many who come to rented accommodation, there are significant numbers who live elsewhere but own residences in Eurobodalla. Some of those are from Canberra with growing numbers from Sydney and other places, and that tends to boost the population over the weekend at most times of the year. These trends have provided an additional stimulus to the building industry.

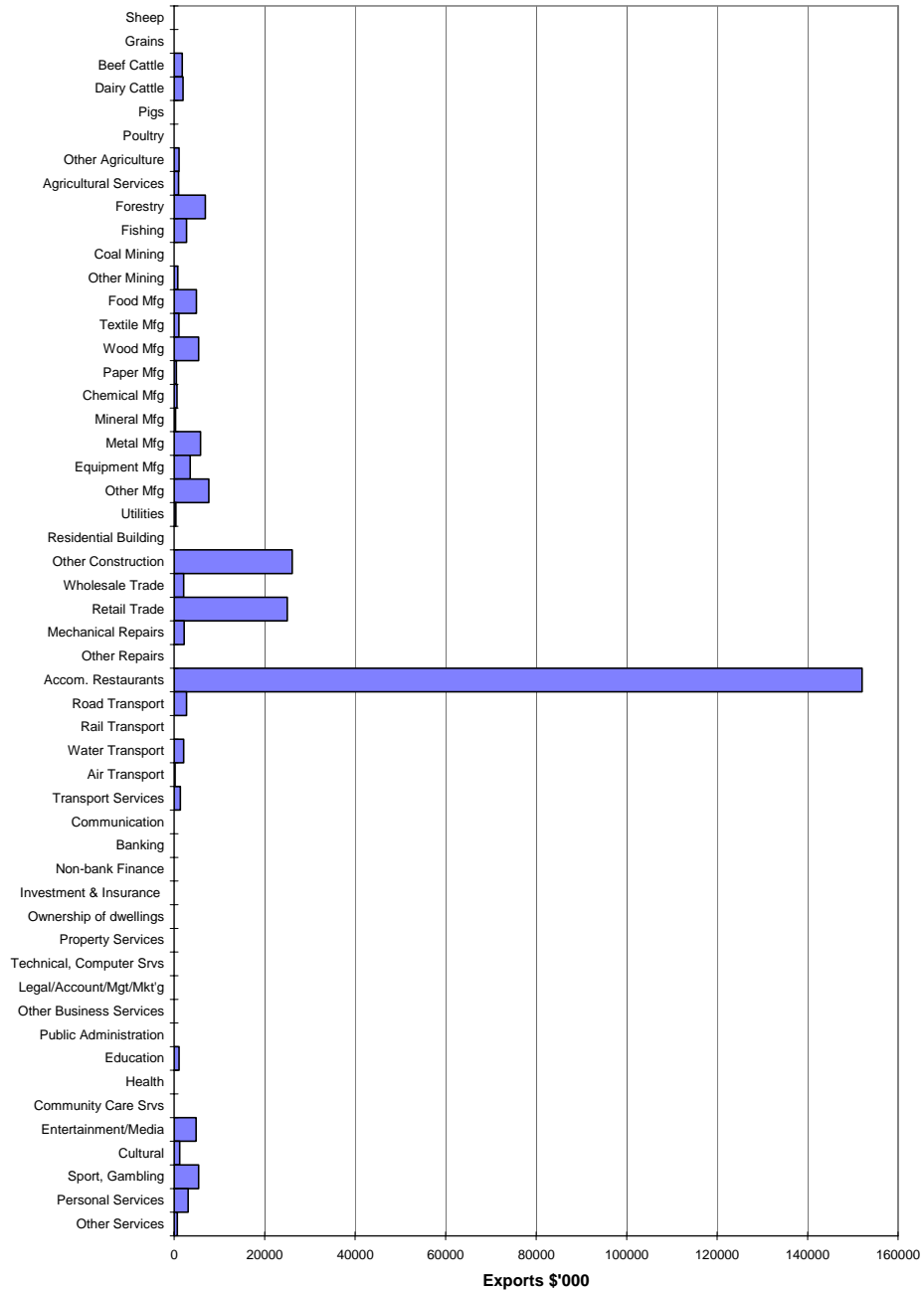
Figure 3-6: Industry Composition of Employment, Eurobodalla, 2005



Estimates of exports are difficult to make and may be subject to significant errors. Exports are defined as sales to persons or businesses that are located outside of Eurobodalla. In this case, commodity exports represent a small part of the Eurobodalla economy. There are some exports from commercial fishing, forestry, processed wood products and construction. Most exports are services, principally accommodation (and indirectly property services) and restaurants, retail trade and a range of personal services. These estimates are relatively crude and are based on total visitor numbers and generic visitor expenditure data. Further refinement would

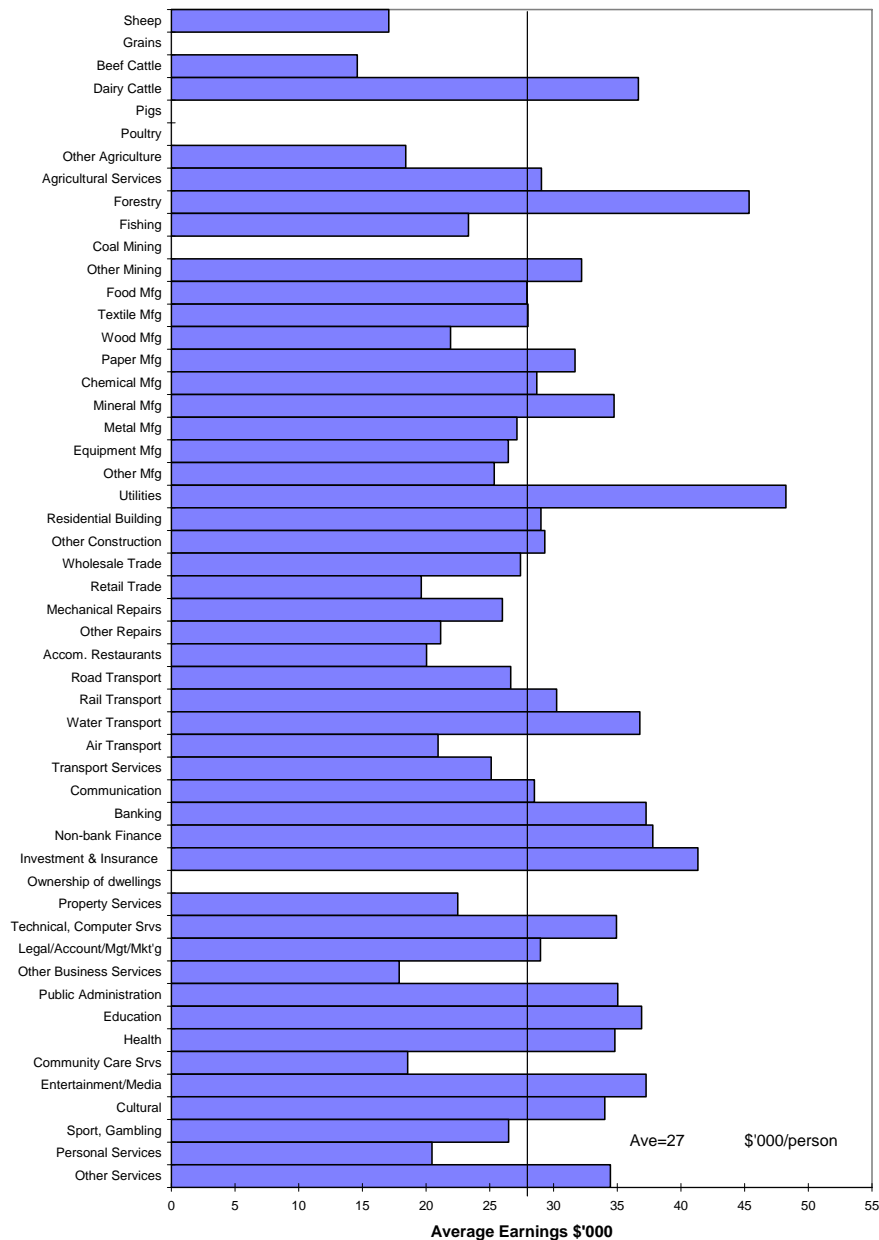
require considerable effort to gather additional data for Eurobodalla and analyse it.

Figure 3-7: Industry Composition of Exports, Eurobodalla, 2005



The average earnings are indicated in Figure 3-8. The pattern shown reflects the expected patterns with low earnings in those industries where there is significant seasonal work, part-time work and the employment of young people. This includes retail trade, accommodation and restaurants, other business services, community care and personal services.

Figure 3-8: Industry Average Earnings, Eurobodalla, 2005



The limited employment opportunities in many areas of business services results in most people with professional skills working in the education and health sectors. The latter have been increasing in relative terms under state government programs, while the growing scale of the economy will attract additional professionals to the region. At present Eurobodalla has relatively low average earnings overall and a high dependence on non-employment earnings from social welfare, investments and superannuation payments as shown in Table 3-7.

3.3 TRENDS IN THE EUROBODALLA ECONOMY

This analysis is primarily based on employment data from the population censuses held each five years since 1981. Location quotients (LQ) are an indicator of the specialist industries in an economy. The value indicates the importance of the industry to the region relative to the importance to the nation. Thus a value of 1.0 indicates the same level of importance while a value of 9.0 for commercial fishing indicates that this industry is 9 times more important to Eurobodalla than it is to Australia. The location quotients are shown in Table 3-8.

The unusual feature of the LQs for Eurobodalla is the relatively small number of industries with a value over 2 and the large number of services that have a value over 1.0. Most of those over 2.0 are declining apart from beef which is expanding at the expense of dairy production which was boosted following the deregulation of dairy production. Forestry and sawmilling have declined following the development of the Regional Forest Agreement for the area.

Commercial fishing is the highest ranked industry although it is small in terms of the Eurobodalla economy as indicted earlier. Commercial fishing is unlikely to grow significantly given the restrictions related to the management of most fisheries in Australia. About one-half of the value of commercial fishing relates to aquaculture (oyster production) that may provide some future growth in fishing overall. The reduction in commercial fishing, analysed here in terms of number employed, is consistent with many other primary industries where there is a trend toward larger production units and higher output-labour ratios. In the case of Eurobodalla, there has also been a trend for some of the ocean fishing operators under AFMA management to use ports in adjoining LGAs.

The standouts among the list is the high value of 2.2 for accommodation and restaurants, a retail sector that is 50 per cent more important in Eurobodalla than in Australia and a building industry that is 80 per cent more important than in Australia. These industries account for a very large share of employment and further highlight the high population and visitor growth and the service centre role of Eurobodalla.

Table 3-8: Location Quotients, Eurobodalla

Ranked Sectors by 2001	LQs					Employment 2001
	1981	1986	1991	1996	2001	
Commercial fishing	14.3	13.5	11.9	10.9	9.0	136
Beef cattle	2.4	2.2	2.4	2.1	3.9	115
Forestry and logging	8.4	6.9	6.0	3.8	3.4	48
Sawmill products	8.8	7.0	5.0	4.1	3.1	54
Accom. & restaurants	3.5	2.8	2.5	2.3	2.2	1117
Dairy cattle	4.2	3.2	1.8	2.0	1.8	69
Residential building	3.2	3.0	2.9	1.8	1.8	830
Water transport	0.5	1.5	0.3	0.9	1.8	25
Other wood products	2.9	0.9	2.4	2.1	1.8	81
Other repairs	0.9	0.9	1.5	1.8	1.7	45
Libraries, museums, arts	1.1	1.1	1.1	1.1	1.6	112
Concrete, cement, lime	1.0	2.1	0.9	2.0	1.6	16
Ceramic products	0.6	1.3	0.9	1.8	1.6	18
Oils and fats	0.0	0.0	0.0	1.6	1.5	3
Retail trade	1.4	1.4	1.3	1.4	1.5	1944
Prefabricated buildings	0.0	0.0	0.0	0.8	1.3	7
Community care services	0.5	0.9	0.8	1.3	1.2	316
Mechanical repairs	1.2	1.3	1.2	1.3	1.2	208
Public administration	1.2	1.4	1.0	1.2	1.2	458
Sport, gambling etc	1.0	0.9	1.2	0.9	1.1	148
Personal services	0.8	0.9	1.2	1.1	1.1	225
Structural metal products	0.1	1.2	0.8	1.4	1.1	33
Water, sewerage & drainage	0.2	0.4	1.4	1.1	1.1	28
Other property services	1.7	1.8	1.7	1.3	1.1	169
Health services	0.7	0.8	0.9	1.1	1.0	782
Other services	0.7	0.7	0.8	0.6	1.0	187
Services to agric.; hunting	0.1	0.3	0.2	0.8	1.0	24
Education	0.8	0.9	0.9	1.0	1.0	749
Electricity	1.0	0.8	1.1	1.1	1.0	45
Road transport	2.9	0.9	1.0	0.8	0.9	218
Publishing; recorded media etc	0.5	0.6	0.5	1.0	0.9	62
Dairy products	2.2	1.4	0.5	0.7	0.9	20
Bakery products	1.4	1.4	1.5	1.1	0.9	33
Glass and glass products	0.3	0.0	0.0	0.6	0.9	11
Non-bank finance	0.3	0.4	1.1	0.5	0.8	34
Other mining	0.8	0.4	1.5	0.3	0.7	7
Petroleum and coal products	0.0	0.6	0.4	0.0	0.7	8
Plaster; other concrete products	1.9	1.2	1.0	0.6	0.3	4
Fabricated metal products	0.2	0.3	0.4	0.5	0.2	10

The level of service delivery is analysed through the population employment ratios (PERs) shown in Table 3-9. For this measure, a smaller value is indicative of higher levels of service. In the change column, a positive value indicates an improvement in the level of service. The overall level of service provision is shown at 4.1 which compares with an average of 3.0 for NSW. There is a higher than NSW average level of services in a number of areas that reflect the importance of retirees and visitors, including:

- Residential building
- Retail trade
- Other repairs
- Accommodation and restaurants
- Water transport
- Libraries, museums etc

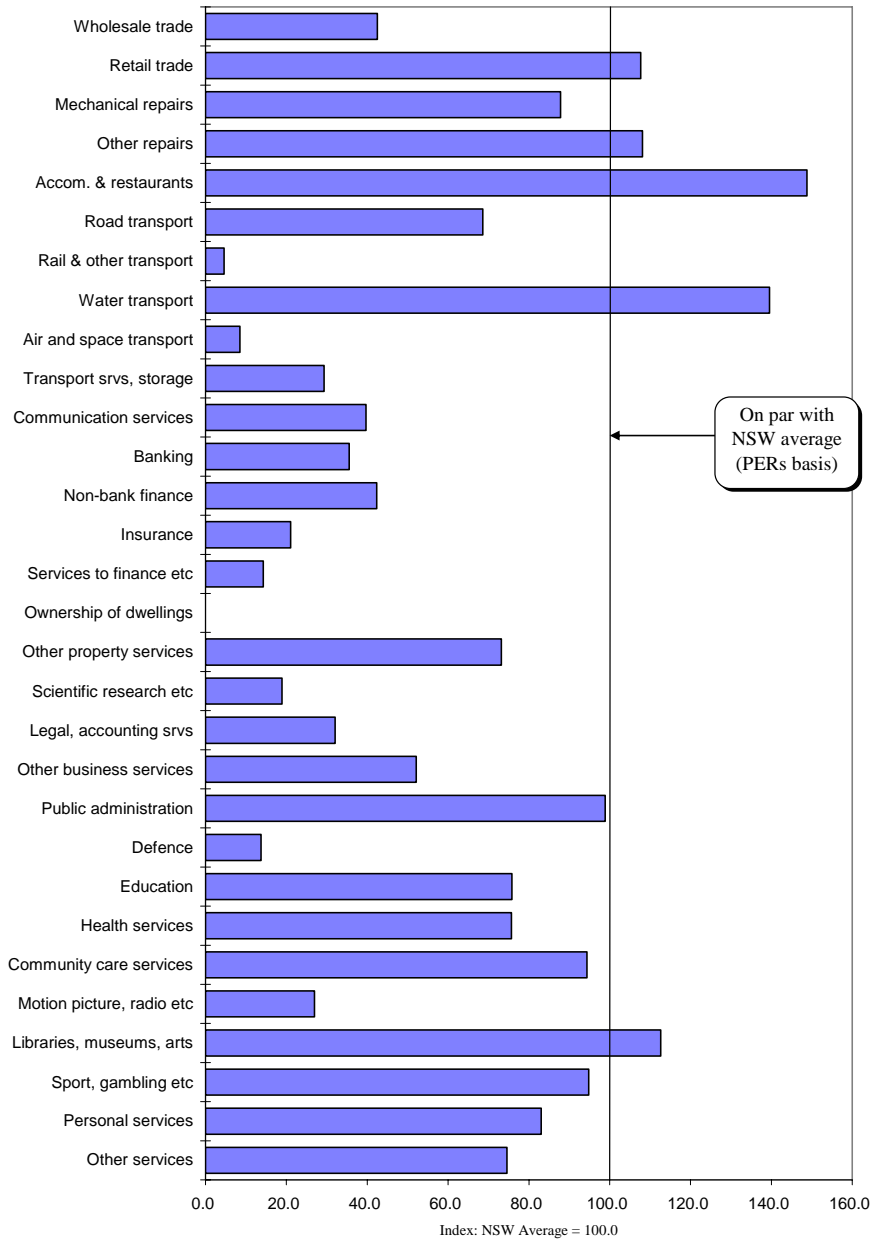
Table 3-9: Service Delivery (PERs), Eurobodalla, 2001

Service Sectors	Eurobodalla LGA					NSW		Change	
	1981	1986	1991	1996	2001	1996	2001	Local 2001 vs 1996	NSW vs local
	Residential building	30	36	35	50	39	62	49	10
Other construction	94	119	172	171	197	88	97	-26	-100
Wholesale trade	88	93	68	96	97	38	41	-1	-56
Retail trade	18	18	20	20	17	21	18	3	1
Mechanical repairs	230	233	248	140	157	136	138	-17	-19
Other repairs	1373	1497	766	577	720	710	779	-144	58
Accom. & restaurants	27	35	31	31	29	47	43	2	14
Road transport	124	178	159	206	149	123	102	56	-47
Rail & other transport	2393	3203	8020	9231	10593	372	482	-1362	-10111
Water transport	3591	1380	8020	3051	1314	1984	1834	1737	520
Air and space transport	1436	3203	1711	0	3485	314	296	-3485	-3189
Transport srvs, storage	1027	521	726	460	729	175	214	-270	-515
Communication services	163	162	212	230	283	112	112	-53	-170
Banking	152	155	165	212	320	104	114	-108	-206
Non-bank finance	1562	1105	493	1291	967	355	410	324	-558
Insurance	1114	966	1131	1404	888	247	187	516	-701
Services to finance etc	1116	1126	826	1480	1452	263	208	28	-1244
Ownership of dwellings	0	0	0	0	0	0	0	0	0
Other property services	149	146	133	181	194	163	142	-12	-52
Scientific research etc	306	294	261	352	358	91	68	-6	-290
Legal, accounting srvs	252	211	185	204	165	58	53	40	-112
Other business services	327	349	282	164	142	91	74	22	-68
Public administration	57	51	69	73	71	70	71	2	-1
Defence	957	781	5003	5898	2464	249	339	3434	-2125
Education	55	53	52	46	44	35	33	3	-11
Health services	64	58	48	41	42	33	32	-1	-10
Community care services	798	299	257	110	103	108	98	7	-6
Motion picture, radio etc	1053	1692	931	1234	1174	369	316	60	-857
Libraries, museums, arts	738	579	552	454	291	330	327	163	37
Sport, gambling etc	443	460	297	308	220	236	209	87	-11
Personal services	309	247	173	159	145	133	120	14	-25
Other services	261	271	217	313	175	131	130	138	-45
TOTAL SERVICES (excluding building & construction)	4.6	4.6	4.5	4.5	4.1	3.2	3.0	0.4	-1.1

These are shown in an index form in Figure 3-9, where they have a value over 100. The lowest levels of servicing occur in transport and communications, banking and finance, business services other than property and other business services, and some areas where the activities do not exist such as defence and rail transport. Most areas of personal services are well serviced, although health and education (and transport) are well below the NSW average. Education is a little surprising given the high level of children in the 10 to 14 year age group note earlier and may have potential for further growth. In health, specialist services are likely carried out in Canberra, while community care activities are local and are near to the NSW level.

In building the projected levels of employment to 2005, small relative improvements have been assumed in building, trade and accommodation as the service level is already high. The highest rates of improvement have been assumed in most areas of transport, legal, accounting and related services and some areas of personal services.

Figure 3-9: Service Delivery Indexes, Eurobodalla, 2001

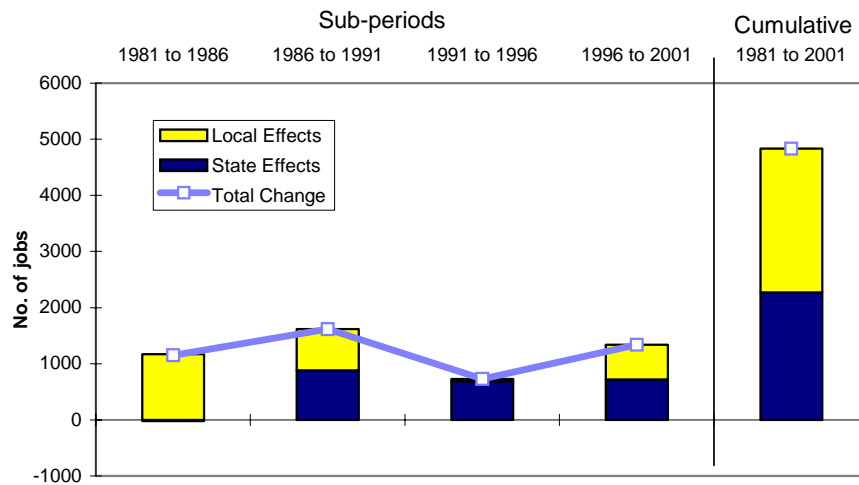


3.4 SHIFT-SHARE ANALYSIS

Over the period since 1981, there has been relatively consistent employment growth in Eurobodalla. Even in the early 1990s, when employment losses were occurring through most of regional NSW, Eurobodalla was able to match the average growth in NSW as shown in Figure 3-10. In this figure, that change shown in blue is the change that would have occurred if Eurobodalla had changed at the same rate as for NSW. The yellow portion indicates the extent to which the local growth

exceeded the equivalent NSW growth. In all periods except 1991 to 1996, the employment growth in Eurobodalla exceeded NSW growth by a significant margin. These are called local effects although this analysis does not indicate the factors that are giving the local area an advantage. For Eurobodalla, a dominant factor is likely to be the high population growth.

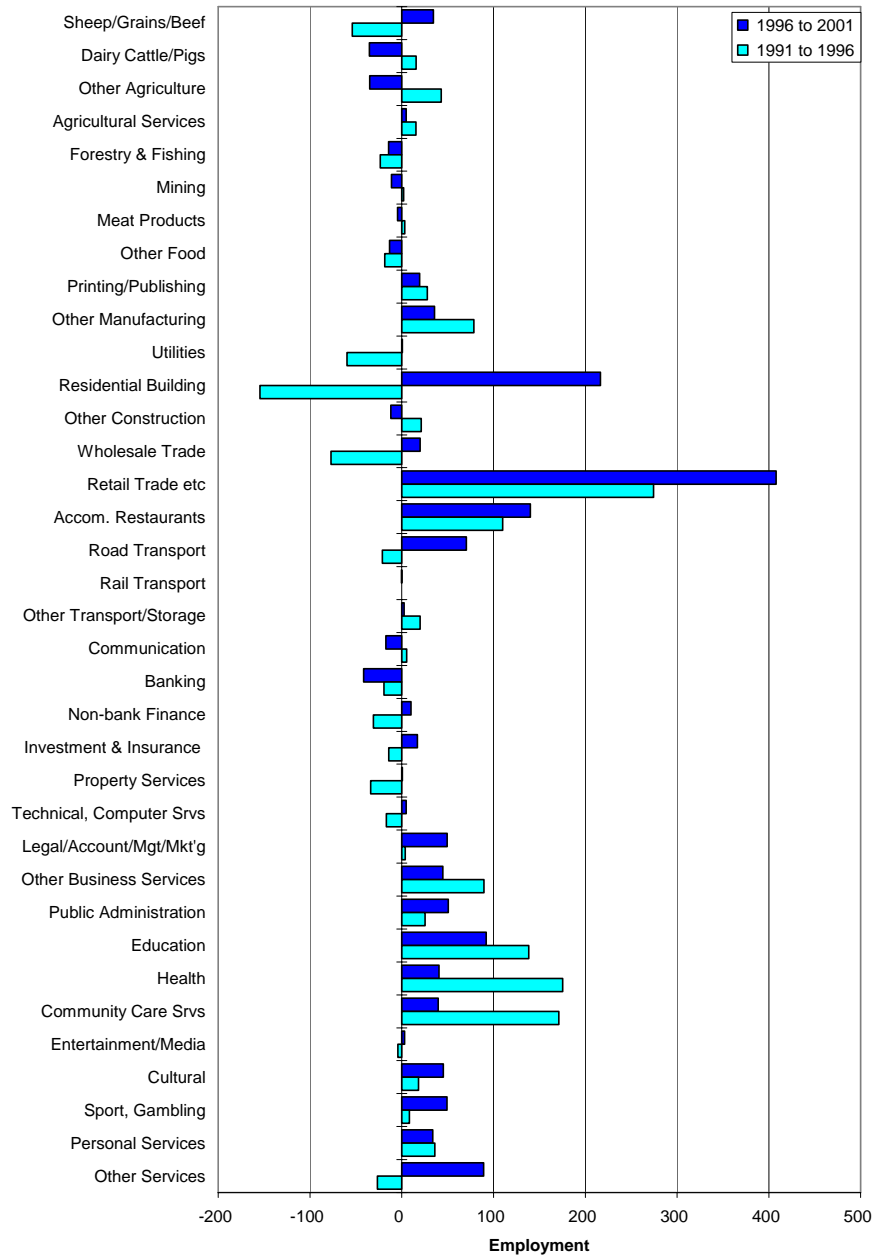
Figure 3-10: Employment Change, Eurobodalla 1981 to 2001



Consideration of Figure 3-11, which shows the total change in employment in the 1990s by industry, provides some additional insights into the changes that have occurred. In the first half of the 1990s, there was a mixture of industry trends with employment losses in residential building, utilities, wholesale trade and a range of business services. On the other hand, there were good gains in retail trade, accommodation and restaurants, (supported by considerable investment in tourism marketing, conferences and events) other business services and the services with substantial public funding, education, health and community care.

Employment growth in the second half of the 1990s was more broadly based than in the early 1990s. Apart from some small losses in employment from primary industry and manufacturing, the level of employment in most services increased. There were some small losses in banking and communications which was a trend found in almost all regions in NSW. The largest gains were made in residential building, retail trade and accommodation and restaurants, all related to the growing population. Overall, this pattern reflects the effect of growth impacting most parts of the economy the broadens the scope of activities that are provided within the region and deepens the range of services within sectors of the economy.

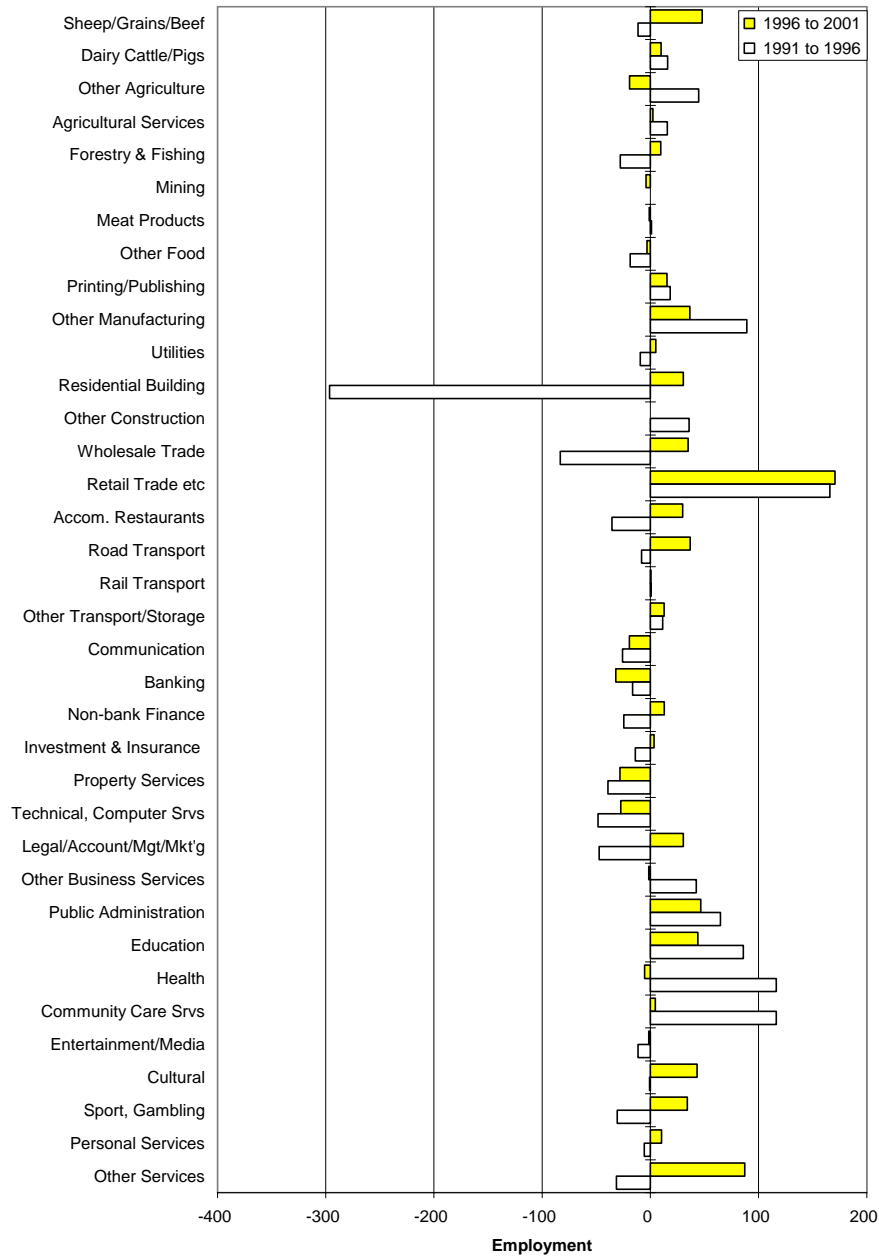
Figure 3-11: Total Change in Employment by Industry, Eurobodalla, 1991 to 2001



The changes in employment noted above are related to the trend in NSW in Figure 3-12. The left of the “0” line indicates that the industry did not grow as quickly as the industry at the NSW level, thereby indicating that this region lost share of the NSW industry. To the right of the “0” is indicative of an increase in the share of the NSW industry. This information can be interpreted as a general indicator of the competitive advantage of the industry within NSW. There were more industries increasing their share in the period from 1996 to 2001 than in the early

1990s. The negligible local change in education, health and community services is notable in the second half of the 1990s when the growth of Eurobodalla has broadened to include more industries.

Figure 3-12: Local Change in Employment, Eurobodalla, 1991 to 2001



The industries that gained a larger share of the NSW industry included beef production, other manufacturing, residential building, wholesale and retail trade, accommodation and restaurants, most of the personal service activities, public administration, education and legal and accounting services.

The strong growth of the Eurobodalla economy appears likely to continue given the demographic structure of Eurobodalla and its coastal location. The growth should spread more widely than in the past as the scale grows and there are opportunities for new activities and services to be provided locally. For example, there is likely to be further development among some businesses services associated with the management of investments and superannuation held by existing and in-migrating new residents.

The shift-share analysis also provides some indicators on the structure and composition of the Eurobodalla economy. The industry mix appeared to be generally favourable with 58 per cent of employment in fast-growth industries (those that within NSW were growing faster than average). However, it was not those industries that were major contributors to growth in employment in Eurobodalla. The industries that were competitive in terms of increasing their market share within NSW (retail trade, other personal services, public administration, etc as noted above in relation to Figure 3-11) were the main generators of growth. Many of those industries were not necessarily high growth industries within NSW.

A final measure relates to the diversity of the Eurobodalla economy. Between 1996 and 2001, this improved slightly to a value of 22.4 (based on a scale that has Australia = 0 and a one industry economy = 100) Eurobodalla has a relatively high level of specialisation within the services industries compared with many regional economies where the specialisation lies in primary or manufacturing industries. Economies with a substantial manufacturing industry such as the Hunter Valley and Shoalhaven have a value of around 16, while NSW as a whole has a value around 7. A predominately rural economy will have a value over 30. Recent growth in Eurobodalla has tended to build more depth into the range of services rather than broaden the base into manufacturing although some signs of manufacturing development are appearing.

3.5 BUILDING STATISTICS

A further indicator of growth lies in the building statistics compiled from building and development approvals. These are shown in Figure 3-13 and Figure 3-14 for residential and non-residential building activity. These charts highlight the peaks in the late 1980s and the late 1990s and on into the 2000s. In the early to mid 1990s, there was a period when all building activity was relatively low. The level of non-residential building also shows as more variable than that for residential building. This arises from some large developments that occur in just a few years in smaller regions, while residential construction is a large flow of relatively small projects.

The ABS data shown in Figure 3-13 excludes some approvals of low value but does provide a longer time series to observe the trends. In Figure 3-14, data of all approvals provided by Eurobodalla Shire are included to provide

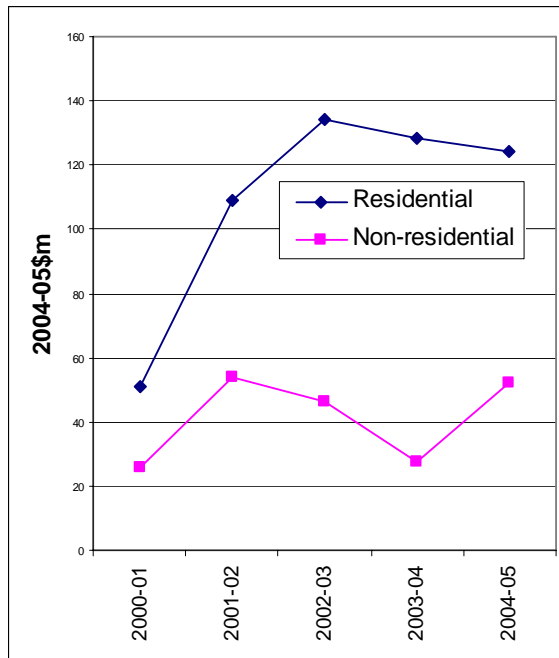
recent data. The period since 2000 has been particularly strong in building activity.

Figure 3-13: Building Activity Eurobodalla (constant \$2003-04)



Source: ABS Building Approvals.

Figure 3-14: Building Approvals, Eurobodalla (constant \$2003-04)



Source: Eurobodalla Shire Council (website)

3.6 SUMMARY

Eurobodalla is a small but growing economy that represents about 0.3 per cent of the NSW economy. It is an economy where the employment share of the population is low because of high levels of unemployment and a large proportion of retirees. The traditional natural-resource based industries include commercial fishing while farming activities are concentrating on beef cattle.

The main force for growth is the rising population of up to 1000 per year. That drives a large building industry and a rapid expansion of services provided to households and visitors. Services targeted at businesses remain weak. Around 49 per cent of household income is derived from employment so that the dependence on social welfare payments and superannuation is much higher in Eurobodalla than the average for NSW.

The future development of Eurobodalla is likely to see a continuation of those trends toward an economy with a high level of dependents and a growing reliance on non-employment sources of household income. The area would continue to lose young people after completing secondary education. On the positive side, the larger economy is likely to generate opportunities to deepen the economy through manufacturing, transport and business services (such as financial planning) to service local needs.

With the baby boomers approaching retirement this may add further stimulus to Eurobodalla as they seek apartments and residences. A trend in this direction has already become evident in recent building data for Eurobodalla. This would complement the already strong level of visitation to Eurobodalla.

4 ECONOMIC IMPACT OF THE PROPOSED MARINE PARK

4.1 THE CONTEXT

The coastal and marine environment of the Eurobodalla region is an important resource for the local economy through:

- The fishing industry (both commercial and recreational) and related activities;
- The attraction of residents to the region, both working age and retirees; and
- The attraction of visitors to the region.

These attributes provide a substantial base for the on-going economic growth of the Eurobodalla region economy. As indicated earlier, the economy is growing strongly and that in itself is an important factor in the continued growth of the region. The continuing strength of the Eurobodalla economy represents a favourable situation for considering changes that will involve some restructuring of economic activities in the region. That does not rule out the possibility of significant impacts for particular individuals or local areas. However, it does provide a situation where there is less difficulty in adjusting resource use than in an economic context where the economy has a weak structure and little underlying growth.

4.2 THE NEW SITUATION

The work involves a comparative analysis of a situation with and without the MP. The without MP situation is defined as the Eurobodalla economy in 2005.

The declaration of the MP and associated zone plan will bring changes to commercial fishing commencing in 2006-07. The changes relate to the determination of various zones within the MP and the specification of allowed and not allowed activities within those zones. The planned designation of the MP zones involves a process of consultation to determine their locations and the activities designated in the zones.

The changes will involve both increases and decreases in the economic activity within Eurobodalla. The planning and implementation costs, such as those related to zoning, will be of a one-off nature. If those costs were significant in relation to the regional economy, then it would be relevant to analyse the economic impacts of those transition effects. That has not been undertaken in this case apart from noting that the buy out arrangements will

impact on the commercial fishing industry and associated households directly. The impacts are estimated on the basis of the changes when fully implemented.

When implemented, the main activities that may be affected positively or negatively by zoning are:

- Commercial fishing
- Intensive aquaculture
- Fishing charters
- Whale and dolphin watching charters
- Recreational fishing
- Other recreation uses such as boating, surfing, etc.
- Subsistence and indigenous fishing.

However, the information provided by the MPA indicates that the economic impacts that can be estimated are on commercial fishing. For the other activities, there is no certainty about any impacts from the MP but there are some hypotheses about some effects. There is a relatively short history of MPs in NSW and to date there is little information that can be used to assess impacts, even on commercial fishing. At this stage a conservative position is assumed that existing activities other than commercial fishing are not negatively affected by the declaration and zoning of the proposed MP. In economic impact terms, the reduction in commercial fishing is the main negative economic effect on the region.

Offsetting the reductions in economic activity, there is a gain in terms of the expenditures required to maintain and operate the MP. These costs have been estimated by the MPA and are included in the analysis.

Finally, there are the effects associated with the buy-back of licences from existing holders. While this is a one-off effect, it represents a capital payment to the licence holders that nominally maintains the wealth of those households and the income that their wealth provides. In reality, the economic impacts of those transactions are complex and will be related to the particular situation of the individuals concerned. That is difficult to assess and has not been attempted here. Instead, it has been assumed that individuals deploy the funds received in such a way that the household is not worse off in wealth and income terms so that they are able to maintain their household consumption expenditure.

In summary, the focus of the analysis is to determine the size and economic impact of the reduction in commercial fishing. Those losses will be offset by the expenditures associated with maintaining and operating the MP,

The impacts are to be assessed on three bases:

- 1 On the basis that the changes were to occur in 2005, ie to assess the total change and relate it to the economy as it is in 2005.

- 2 On the basis of the economy in 2010 when the full effects of the declaration and zoning will have occurred. This involves projecting the economy to estimate its size and structure in 2010 and relate the changes to that projected economy.
- 3 Similar to 2 above but projected to 2015.

Normally, consideration of the changes into the future will also enable estimates to be made of how the impacts might change as a result of the declaration of the MP. That would allow for some of the dynamics to occur such as the possibility that more visitors may be attracted to the area to view the features of the MP, an increase in recreational fishing with the contraction of commercial fishing, additional catches from commercial fishing outside of the marine park, restrictions on the development of new aquaculture within the MP area and so on. However, these changes will only become apparent with the passage of some time after implementation of the MP.

4.3 THE DISPLACED ACTIVITIES

The main economic activity affected by the declaration of the MP is expected to be commercial fishing. As discussed above, the other activities, including recreational fishing, are not expected to be impacted. The commercial fishing industry is reviewed in this section.

4.3.1 The Commercial Fishing Industry

A profile of the commercial fishing industry is developed because it will be impacted by the declaration of a MP and associated zoning arrangements. The impact analysis model includes a separate specification of commercial fishing and aquaculture to estimate the multipliers. The profile provides that specification for 2005. A projection of the industry through to 2010 is also made in the absence of the MP to provide a baseline estimate of the commercial fishing industry in that year. An understanding of the structure and trends in the industry is required to support those projections.

A profile of the fishing industry in the Batemans Shelf Bioregion is based on information reported by active licence holders reporting on their fishing activities. These data are subsequently related to that part of the region that has been designated for the MP. The availability, access and interpretation of the data make the building of an industry profile a difficult task.

Given that most of the proposed MP is along the coast of the Eurobodalla Shire, it is the boats that operate in that region and land catch in that region that are the focus of this profile. The fisheries that are under the management of the Commonwealth Government's Australian Fishing Management Authority (AFMA) are not included in this profile to any

significant extent. This is because of the limited information that is available and because only a small fraction of the boats operating in nearby waters land catch in Eurobodalla. A full understanding of this pattern has not been attempted, but it relates to where the catches are made in the ocean zones (they vary from year to year), the markets for the catch with most being forwarded to the main capital city markets, and the support facilities for the boats at the various ports.

The proposed MP only extends three nautical miles offshore and, as a result, it has little direct impact on the ocean fishing under AFMA management. The conditions in the ocean zones are related to the management of those fisheries with the areas fished, and the quantities and types of fish caught varying from year to year. As a result, the areas where those boats operate and the ports they use also vary over time and year to year. A summary of the boats using ports in the South Coast area is shown in Table 4-1. This indicates that there is a substantial drop in the number of boats operating from those ports in 2005. Further, only two boats used the ports of Batemans Bay and Narooma that are located in Eurobodalla. Most boats used the port of Ulladulla that is closest to the major Sydney market which would be the largest market for most of the catch from these waters.

Table 4-1: Number of Boats Landing Fish in Selected Ports

Port	Number of boats 2004	Number of boats 2005
Batemans Bay	2	2
Bermagui	18	15
Narooma	2	2
Ulladulla	38	24
Total	60	43

Source: AFMA.

For this analysis, it would be preferable to include the operations under the management of AFMA to provide a full picture of the local economic activities related to fishing. The existence of the ocean fishing managed by AFMA contributes a substantial volume and value of fish in addition to the catch managed by NSW. That builds the scale and scope of the activities that service the boats, provide crews, and handle and market the fish.

For the analysis of Eurobodalla, the following points relate to this issue:

- Most of the support services for the ocean fishing fleet are provided at ports outside Eurobodalla.
- Based on the population census data, it appears that few of the people employed in the ocean fishing are recorded as working in Eurobodalla or residing in Eurobodalla (see below).
- There is significant year-to-year variation in the level of activity of the ocean fleet at particular ports.

- The ocean fishing operations will not be affected to a significant extent by the proposed MP, although some of the fishers do take bait fish in areas within the proposed MP.

The relevant fishery under NSW management is the Batemans Bay/Two-fold Shelf Marine Bioregion. The proposed MP is part of that larger region that extends from Shellharbour to the Victorian Border. In the first instance, a set of data are presented that relate to the Batemans Bay/Two-fold Shelf Marine Bioregion to provide an overview of the industry and recent trends. A subset of those data is then presented to indicate the level of activity that appears to be attributable to that part of the Batemans Bay/Two-fold Shelf Marine Bioregion that is in the proposed MP. That is then considered to be that part of the industry that is linked to the Eurobodalla economy.

The commercial fishing industry comprises a diverse mix of activities. The areas under NSW Government management comprise ocean waters up to three nautical miles from shore in Ocean Zones 1007, 1008 and 1009. The MP includes part of 1008 and part of 1009. These areas are fished using trawl, trap and line and hauling technologies and are the source of abalone, lobsters, prawns and a variety of other fish, some in significant quantity, and some baitfish.

The coastal areas include many estuaries and lakes with various regulations already in existence. The estuary fishing activities are restricted to owner-operators where their personal situation has a significant impact on the way they fish and their fishing effort. The commercial fishing activities are separated from those of aquaculture in the lakes and estuaries. Aquaculture in this region is almost entirely oyster production.

While there is considerable diversity of fishing activities, there are large variations in the catch and value of the catch from year to year. These variations reflect changes in market conditions but mainly variations in the catch associated with changes in the natural environment. Those variations also extend to the ocean zone catch.

These data need to be considered carefully as a number of caveats apply. The information is reported by the fishers for licences and endorsements held and there is little opportunity to check the accuracy of the information supplied or the consistency of the information over time. The information is usually supplied for each of the endorsements held and so it is not readily converted into information for fishing businesses. There will be fishing businesses that hold more than one endorsement. In some cases, the endorsements include both the fisheries under state control and those under commonwealth control. These factors make it difficult to build a profile of the fishing businesses in the region. It is also difficult to make an estimate of the number employed given the mix of full time, casual and part-time employment of both operators and employees.

The value of the catch in the state waters is estimated using a set of values for representative types of fish recorded at the Sydney wholesale market. This is likely to give reasonable values for some parts of the fishery such as the ocean trawl and ocean hauling because most of those catches are despatched to those markets. Most of the other fishing in the ocean zones and the estuaries is targeted to local markets. In that case, the values for the Sydney wholesale market are likely to underestimate the value of sales to local buyers serving local residents and the large number of visitors to the region.

The fishing managed by the Commonwealth Government is primarily a trawl and longline fishery. The major longline fishers took 6,310 tonnes in 2004-05 while the minor line fishers took almost 60 tonnes. The major longline fishers are large boats and operate over a much of the Eastern Australian waters. Most of the catch would be destined for the major wholesale markets in the cities, especially Sydney. In 2004-05, the main port for the unloading of the catch was Ulladulla (in Shoalhaven LGA and outside the proposed MP) and Bermagui (in Bega Valley LGA and outside the proposed MP). There are relatively few landings of fish from these fisheries in the Eurobodalla LGA

4.3.2 The Batemans Bay/Two-fold Shelf Marine Bioregion

A summary of the commercial fishery in the Batemans Bay/Two-fold Shelf Marine Bioregion is indicated in Table 4-2. A detailed set of data over several years is included in Attachment 5. The caveats mentioned above apply to these data, especially those related to the number of fishing businesses (these data reflect endorsements) and the valuation method that is probably conservative.

Table 4-2: Total Batemans Bay/Two-fold Shelf Marine Bioregion Commercial Fishery Value 2004/05

Fishery	Fishing	Catch	Catch Value	Share of
	Businesses			Total
	Number	Kg	\$	%
Estuary General	133	431,471	2,026,247	19.0
Fish Trawl	23	304,179	1,059,225	10.0
Ocean hauling	18	1,198,678	2,429,388	22.8
Ocean Prawn Trawl	2	1,378	24,419	0.2
Ocean Trap & Line	70	211,914	970,739	9.1
Abalone	61	77,559	3,102,360	29.2
Lobster	27	28,456	1,027,390	9.7
Total	334	2,253,635	10,639,768	100.0

Source: NSW DPI

A number of characteristics of the fishery include:

- Most of the endorsements are in the estuary general category and the ocean trap and line category. In these two fisheries, relatively

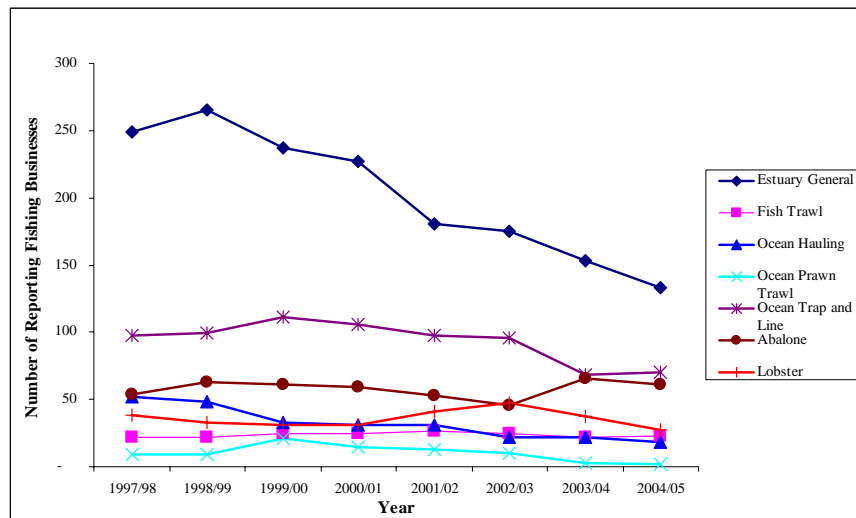
large numbers of fishers are involved yet the total catch is relatively small in weight but relatively high in unit value terms.

- The large volume fishery is ocean hauling with relatively few involved and producing relatively low value fish.
- There is considerable value in the specialised lobster and abalone fisheries, and a large number of fishers are involved.
- Prawn fishing is of low importance

The data gathered for recent years provides a perspective on the trends in the industry. The trends for the Batemans Bay/Two-fold Shelf Marine Bioregion are likely to reflect the trends that are occurring in the industry within the waters of the proposed MP.

The number of fishing businesses is indicated in Figure 4-1. In essence, these reflect the number of endorsements to fish in that category of the fishery. There has been a significant decline in the estuary general fishery while most of the other categories have remained relatively stable or slowly declining. The number indicated for abalone has tended to increase especially since 2002-03.

Figure 4-1: Number of Fishing Businesses, Batemans Bay/Two-fold Shelf Marine Bioregion



The size of the catch by weight is indicated in Figure 4-2. For most of the fisheries the catch is relatively stable. However, there has been a large increase in the catch from ocean hauling in the early 2000s that has been sustained since then. The catch for abalone has been declining steadily over recent years. This also indicates that there is some variation from year to year among most of the fisheries.

The combination of the trends in the number of fishers and the size of the catch provides a more diverse picture in terms of the average catch per fisher shown in Figure 4-3. The average catch has risen spectacularly for

the ocean haulers. Among the other categories, there has been a tendency to decline in the fish trawl category while the estuary general category has tended to increase.

Apart from ocean hauling where there has been a very rapid increase in the average catch, most of the remainder of the fishery has been changing only slowly in structure with quite a deal of variation from year to year. There is possibly a slight tendency for the number of fishers to decline and for the average catch to rise to maintain the overall economics of the operators in the industry. However, that tendency has not been as strong as might be observed in some other fisheries (eg. Port Stephens) and in agriculture.

Figure 4-2: Total Fishery Catch, Batemans Bay/Two-fold Shelf Marine Bioregion

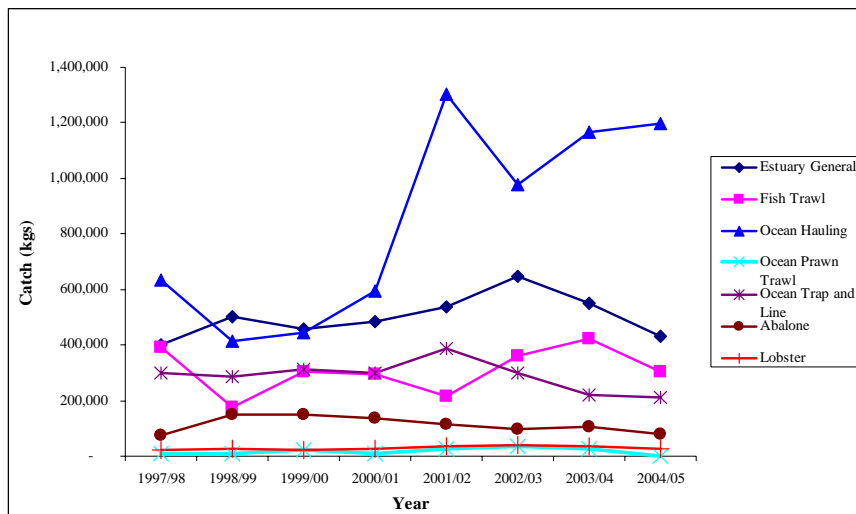
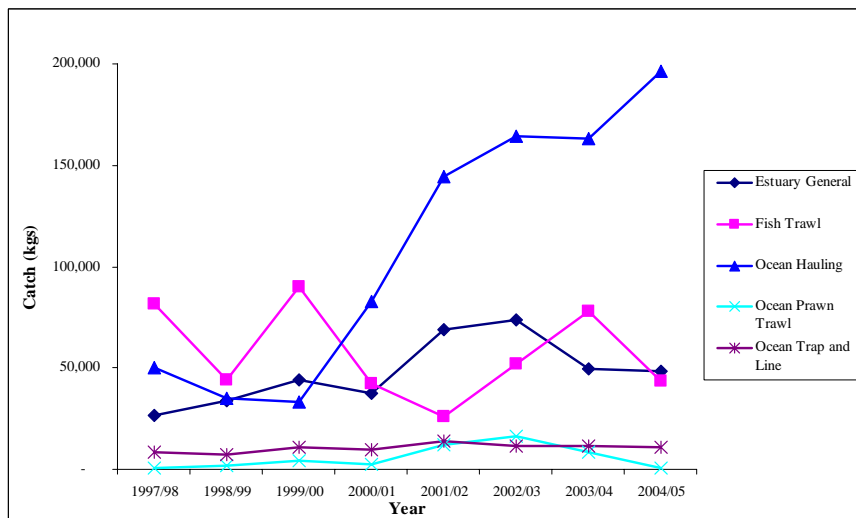
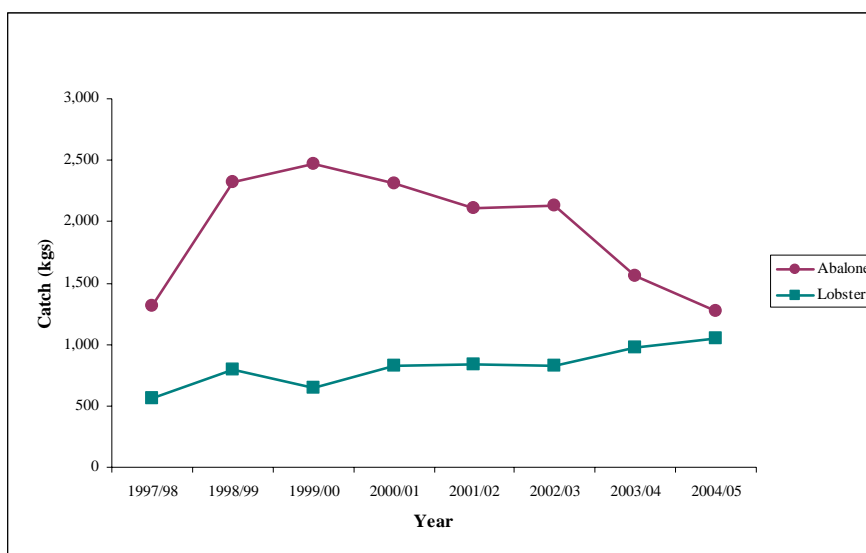


Figure 4-3: Average Catch per Fishery Business, Batemans Bay/Two-fold Shelf Marine Bioregion



For abalone and lobster, the average catch information is shown in Figure 4-4. These show a steady decline in the catch of abalone fishers while the average catch of lobster fishers has tended to rise over recent years. These are share managed fisheries and have highly developed regulatory arrangements. Those arrangements essentially determine the catch of those participating in the abalone and lobster industry.

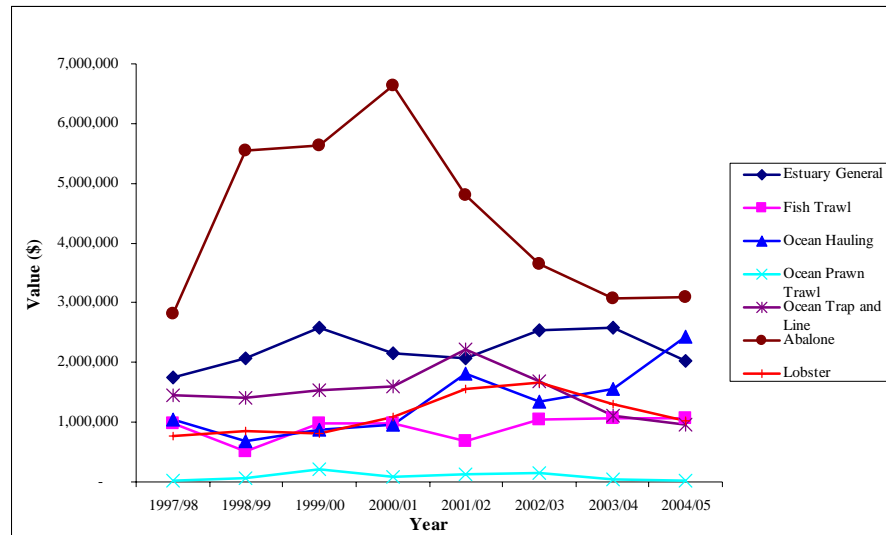
Figure 4-4; Average Catch for Abalone and Lobster Fishing Businesses



Finally, the catch value in the various categories of the fishery does show some significant fluctuations over time that suggests that price variations do have an impact on the revenues earned in addition to fluctuations in the weight of the catch (see Figure 4-5). The value of the abalone fishery is quite dominant and peaked in 2000-01. However, there has been a substantial decline since then. The estuary general category has the highest value while the ocean hauling has been the category with the most growth over the period. On the other hand, ocean trap and line fishing has declined significantly since 2001.

The subsequent analysis of economic impacts establishes a baseline against which changes in the industry may be assessed. The input-output table used is based on projections to 2004-05 and so it is preferable to use a baseline of the same date if possible. In terms of the Batemans Bay/Two-fold Shelf Marine Bioregion, the 2004-05 catch at 2,253,635 kg was 7 per cent higher than the eight year average, while the 2004-05 catch value was 8 per cent below the eight year average. This suggests that the use of the data for 2004-05 will be appropriate as a baseline against which the changes associated with the MP can be assessed although it varies a little from the eight year averages.

Figure 4-5: Total Catch Value, Batemans Bay/Two-fold Shelf Marine Bioregion



The residential location of the licence holders is indicated in Table 4-3. What is notable is that almost one-half of the holders reside outside the Batemans Bay/Two-fold Shelf Marine Bioregion. The largest number resides in Sydney. While the implications of this are not fully understood, it appears likely that any impact on those holding licences will not be confined to Batemans Bay/Two-fold Shelf Marine Bioregion.

Table 4-3: Residence of Licence Holders in the Batemans Bay/Two-fold Shelf Marine Bioregion

Licence holder residence	Batemans Bay/Two-fold Shelf Bioregion	
	Number	% Share
North of Sydney	33	12.4
Sydney Region	69	25.9
Wollongong area	9	3.4
Kiama area	15	5.6
Nowra	3	1.1
Jervis Bay area	19	7.1
Ulladulla	28	10.5
Batemans Bay	21	7.9
Moruya	7	2.6
Narooma	30	11.3
Bega	3	1.1
Eden	16	6.0
Southern Tablelands	1	0.4
Interstate	12	4.5
Total	266	100.0

The Batemans Bay/Two-fold Shelf Marine Bioregion is also a significant area for aquaculture but it almost entirely oyster production. For 2003-04 oyster production from the Bioregion was valued at \$8.8m (Table 4-4). The MP area includes around 60 per cent of that production with a value of \$5.4m. The aquaculture activities are significant employers of labour on a regular basis.

Table 4-4: Aquaculture Production in the Batemans Bay/Two-fold Shelf Marine Bioregion

Estuary	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Shoalhaven River	121,236	253,170	146,297	318,559	356,865
Crookhaven River	523,412	327,720	392,110	497,246	468,553
Clyde River	1,887,766	2,693,546	2,683,606	3,310,685	4,058,849
Tuross Lake	598,701	454,420	228,398	234,935	283,549
Wagonga Inlet	771,427	896,297	908,127	1,026,051	1,075,355
Wapengo Lake	326,865	326,995	309,928	280,818	372,857
Merimbula Lake	1,292,475	894,759	1,064,917	1,321,926	1,483,610
Pambula River	383,029	488,785	490,096	601,914	580,410
Wonboyn River	304,599	137,487	52,251	75,588	144,355
Total Bioregion *	6,209,510	6,473,179	6,275,730	7,667,722	8,824,403
Total MP Area	3,257,894	4,044,263	3,820,131	4,571,671	5,417,753
MP share (%)	52.5	62.5	60.9	59.6	61.4

* Some smaller estuaries within the bioregion are not reported separately but are aggregated in the category of 'others'. These have not been included in this table.

4.3.3 The Area Relating to the Proposed MP

The fishing activities that are undertaken in the proposed MP area are the focus of this section. This is where the main direct impacts are likely to occur. From the fishing perspective, this involves identifying the level of current fishing activity taking place within the area of the proposed MP. A summary table has been prepared of the levels of commercial fishing based on the waters within the proposed MP. The information has been compiled by the NSW DPI on the basis of those areas that are included in the proposed MP. The areas from the Batemans Bay/Two-fold Shelf Marine Bioregion that relate to the MP are shown in Table 4-5.

The data are the most recent available which is generally 2004-05 and are shown in Table 4-6. A detailed set of data showing the catch and value for each of the fisheries is included in Attachment 5. The table also includes aquaculture which is about 48 per cent of the catch in the Batemans Bay/Two-fold Shelf Marine Bioregion and one half of the catch from the area included in the MP. The existing aquaculture activities are not likely to be affected directly by the creation of the MP. None of the AFMA-controlled fisheries are included in the area of the proposed MP.

Table 4-5: Share of Catch in Proposed MP Area

Area	Fishery	% Caught in MP
Zone 8	Estuary General	50%
	Fish Trawl	50%
	Ocean Hauling	50%
	Ocean Prawn Trawl	38%
	Ocean Trap and Line	44%
Zone 9	Estuary General	60%
	Fish Trawl	60%
	Ocean Hauling	60%
	Ocean Prawn Trawl	46%
	Ocean Trap and Line	100%
Brou Lake	Estuary General	100%
Candlagan Creek	Estuary General	100%
Clyde River	Estuary General	100%
Coila Lake	Estuary General	100%
Congo Creek	Estuary General	100%
Corunna Lake	Estuary General	100%
Durras Lake	Estuary General	100%
Kianga Lake	Estuary General	100%
Meringo Creek	Estuary General	100%
Nangudga Lake	Estuary General	100%
Wagong Inlet	Estuary General	100%
Wallaga Lake	Estuary General	100%

Source: NSW DPI Data base, extraction January 2006.

Abalone is largely dependent on the MP area for its production while ocean hauling is 56 per cent dependent on the MP area followed by ocean fish trawl at 49 per cent. The estuary general fishery is only dependent on the MP area for 31 per cent of its catch with the remaining ocean fisheries at 38 per cent. This is indicative of a likely low impact of the creation of the MP on the fishery. Overall 56 per cent of the Batemans Bay/ Twofold Shelf Marine Bioregion catch is sourced in the MP and the impact of the MP will depend on the designation of the sanctuary zones within the MP where commercial fishing will not be allowed.

Table 4-6: Summary of Commercial Fishing in the Proposed MP Area

Fishery	BBT Bioregion 2004 - 05 (\$)	MP Region 2004 - 05 (\$)	MP Share of Bioregion. (%)
Estuary General	2,026,247	638,868	31.53
Fish Trawl	1,059,225	516,566	48.77
Ocean Hauling	2,429,388	1,381,165	56.85
Ocean Prawn Trawl	24,419	9,232	37.81
Ocean Trap and Line	970,739	366,063	37.71
Lobster	1,027,390	285,061	27.75
Abalone	3,102,360	2,754,244	88.78
Aquaculture*	8,824,403	5,417,753	61.40
Total	19,464,170	11,368,953	
Total (Excluding Aquaculture)	10,639,767	5,951,200	

* Values for 2003 / 04

Source: NSW DPI

The estimated value of commercial fishing is likely to be significantly undervalued through the use of Sydney fish market prices. Apart from the significant volumes of fish from ocean hauling, most of the fish are sold into local markets at prices that would exceed the prices received in the Sydney wholesale market. Thus, these values would appear to be conservative for these activities.

Note also that this does not include any major catch from the ocean fisheries managed by AFMA. There is likely to be a small amount from those fisheries by licence holders who hold endorsements to fish in both NSW and the AFMA managed areas. While this will entail a small omission from the data, they are from catch that will not be impacted directly by the proposed MP.

The values shown in Table 4-6 are used in the impact analysis to make an assessment of the relative contribution of the fishing industry to the Eurobodalla economy in 2004-05. That represents the baseline against which the impacts of changes in the fishing industry associated with the MP and its zoning can be compared.

4.3.4 The Impact of the Marine Park on the Fisheries

The estimate of the effect on the fisheries from the MP is related to the areas that are zoned to be sanctuaries, where commercial fishing is not allowed. For each fishery, the assumed reduction in the commercial catch is shown in Table 4-7. The assumed reduction in catch is then applied to the average catch over the past eight years to determine the reduction in catch and value except for abalone and lobster where the reduction is calculated on the value of the 2004-05 catch. This provides an estimate of the value of the fishery after the MP and zone arrangements are in place as shown in the last column of Table 4-7. These show that the catch will decline by 19 per cent of the 2004-05 base level or \$1.157m in value. The largest reductions in value terms are in the estuary general, ocean hauling and abalone fisheries. The fishery is estimated to produce \$4.8m post the formation of the MP, with abalone contributing almost one half of that catch.

Table 4-7: Estimated Catch Values under MP Zoning Scenarios

Fishery	MP Region 2004 - 05 (\$)	MP Impact on Catch (%)	MP Impact on Catch (\$)	Catch with MP (\$)
Estuary General	638,868	30	194,439	444,429
Ocean Fish Trawl	516,566	20	83,770	432,796
Ocean Hauling	1,381,165	30	218,905	1,162,260
Ocean Prawn Trawl	9,232	20	6,134	3,098
Ocean Trap & Line	366,063	30	183,707	182,356
Abalone	2,754,244	15	413,137	2,341,107
Lobster	285,061	20	57,012	228,049
Total	5,951,200		1,157,104	4,794,095

4.3.5 Specification of the Commercial Fishing Industry

The specification of the commercial fishing industry involves a number of considerations. The first task is to develop a specification for 2005 and then for 2010 based on trends and expectations of change up to that time.

First, the analysis is focused on commercial fishing and is separated from aquaculture. Within the structure of the national input-output table, commercial fishing and aquaculture are combined into one sector. They are separated in this analysis.

Second, the sector compiled for commercial fishing has been based on gross output values and cost information obtained from the DPI for fishing operations.

Third, employment in the input-output tables is generally structured to show persons employed in their primary industry of employment. In this case, the direct employment in commercial fishing is shown to be 133 (including aquaculture), based on no adjustment to the 2001 population census. No adjustments have been made to estimate the actual employment input in 2005 which would be a very difficult task. The approach adopted here has to make some estimates of what might be the employment situation in 2004-05 for the various fisheries given the information on endorsements and catch.

The inadequacy of the employment estimates is a problem because of the increasing flexibility in employment arrangements and the significant number of households that earn income from more than one source. That makes the estimation of reliable employment effects a very difficult task and the interpretation of the employment results problematic. For the fishing industry where there are many operators ranging from full-time to part-time and a range of casual employment arrangements, accurate employment data are difficult to obtain.

In our opinion the best indicator of the socio-economic impact of a change such as this lies in the contribution that the industry makes to household income in the region. In this analysis, a wage is imputed to self-employed workers to estimate total earnings from employment as distinct from business ownership. In constructing the commercial fishing sector for inclusion in the input-output model, the estimated total wage payments for the fishing industry was made up of several components. A full-time wage of \$25,600 was attributed to persons working in the industry. The number of full-time workers was comprised of 77 working in aquaculture and 56 working in other fisheries. The reduction in full-time workers between the 2001 population census (56) and 2004-05 (42) was based on the reduction in the number of active endorsements over that period.

In 2004-05, there were 153 active endorsements plus those operating in abalone and lobster fishing. Not all of these reported working full time in

commercial fishing at the time of the census. After allowing for the full-time employment recorded in the census, an estimated 150 worked part-time. They were assumed to earn 30 per cent of the full-time wage or \$7,700 per year.

The above estimates provided the basis for estimating the earnings that were accruing to households in the region from the commercial fishing activities. For 2004-05 total household income was estimated to be \$2.232m, equivalent to 41 per cent of the gross output value. While this is somewhat arbitrary, it is considered to be reasonable for the purposes of this study and provides an indicator of the contribution of commercial fishing to the welfare of households in Eurobodalla. It is a better guide that measures related to employment where the data are very poor and incomplete.

In addition the aquaculture production was estimated to produce \$5.4m with household income of \$1.976m for 77 people employed. The nature of aquaculture is such that employment arrangements are consistent and likely to be full time so that the estimates of employment and household income are able to be interpreted in a conventional way.

4.3.6 Related Activities

The main commercial activities related to fishing are those related to the handling and marketing of the fish. This is generally performed by cooperatives such as those in Bermagui as well as Ulladulla in the neighbouring Shoalhaven Shire. In addition some private operators also provide a limited number of services. In Eurobodalla, the role of the cooperatives is limited. Much of the high value catch is sold to local consumers (households), local restaurants and to visitors. The large volumes associated with ocean hauling are despatched to the main city markets while there is no substantive processing (manufacturing) operations in the region. The abalone is handled and despatched mainly to export markets by an operator in Wollongong.

There is no large processing and marketing operation in the region related to commercial fishing, there are many smaller businesses including the fishers themselves that are involved in the handling and marketing of fish to the local market. Those activities are not readily identified in terms of specific employment, but there is value adding that is accruing to the local economy. The exact nature and size of these activities have not been identified, but some order of magnitude of those activities and the economic impacts that are generated are indicated in the section on economic impacts.

4.3.7 Developments to 2010

The profile of the fishing industry presented for the Batemans Bay/Two-fold Shelf Marine Bioregion and the subset within the MP is one of a mature fishery. There is no pronounced trend in the level of the catch and its value although there are significant variations from year to year in total and among the fishery components. There is a trend toward a reduced number of active endorsements in most of the components. The lobster and abalone components are share managed fisheries where the regulatory arrangements determine the catch levels which have been trending down in recent years, particularly for abalone.

Although fluctuations in the performance and fortunes of the industry are likely to continue, at this time it is considered that the next five years of the fishery will be similar to the past five years in the absence of the MP. A continuing decline in the number of active endorsements and the number of fishing businesses is likely to continue.

As a result, an estimate of the economic impact of the fishery in 2010 is based on the specification of the industry that is used for 2005. That is included in the 2010 input-output table to test the effect of the growth of the economy on the multipliers applying to the fishery industry.

4.4 COMMERCIAL FISHING ECONOMIC IMPACTS

This analysis is undertaken in two parts. First, establish the economic impacts of the existing commercial fishing industry on the Eurobodalla economy as a baseline. Second, estimate the economic impact of the reduction in commercial fishing as a consequence of establishing the MP.

4.4.1 The Existing Industry

The economic impact of the fishing industry on the Eurobodalla region is determined as the direct effect of fishing plus the flow-on effects. To make these estimates involves the following steps:

1. The data developed previously are used to specify the fishing industry in the input-output table. This involves separate sectors for aquaculture and commercial fishing. The commercial fishing sector is a weighted average of all the fishery components. This specification leads to overall multipliers for the fishing industry rather than for each component. When there is a change in the composition of the industry, those changes are incorporated into the sector specification and subsequently lead to adjustments in the multipliers.

2. The input-output table is used to estimate the multipliers for the fishing industry.
3. The multipliers are applied to the gross output value of the fishing industry to estimate the flow-on effects that are generated.
- 4.

These steps result in the estimates of the economic impact of the fishing industry as shown in Table 4-8. The following provides information on the measures used and the nature of the various impacts shown in those results.

The economic impacts are calculated for the following measures:

Gross output, which is equivalent to business turnover;

Value added, which is the payment to labour and capital (This approximates Gross Regional Product.)

Household income is the wage and salary component of value added, but including an imputed wage for self-employed labour.

Employment, which is the number employed unadjusted for hours worked or other factors.

The multipliers are shown as comprising the following:

The **direct effect**, which is the actual value of final demand of the primary impact;

The **production-induced effect**, which shows the flow-on effects generated through the purchase of goods and services;

The **consumption-induced effect**, which shows the flow-on effects that are generated through the payments of wages and salaries to households and the subsequent expenditure of those incomes of purchasing household goods and services;

Total Flow-on, which is the sum of the production-induced and consumption-induced effects;

Total impact, which is the sum of the direct and total flow-on effects; and

Type II which is a ratio between the total impact and the direct effect.

All of these multipliers are what are described as “Final Demand Multipliers”. This means that they are calculated as if the direct effects are sales to final demand (to consumption, exports, capital formation or government consumption). The multipliers are used by applying the appropriate value to the gross output value to estimate the total impact shown in Table 4-8. The multipliers should be interpreted as ‘indicating the flow-on effects generated by a \$1 change in fish production’ (in the case of employment it is the number employed per \$1m in gross output).

These estimates are based on the level of output for 2004-05 developed earlier and the application of the multipliers estimated from the commercial fishing sector included in the 2005 input-output table for Eurobodalla. The flow-on effects range from 0.35 to 0.73 times the direct effects depending on the measure used, being highest for the employment estimates not considered to be reliable) and lowest for household income. Those

multipliers are higher for the consumption-induced effects than for the production-induced effects.

Table 4-8: Estimated Economic Impact of Commercial Fishing in the Eurobodalla Region, 2005

	Flow-on Effects				TOTAL IMPACT	Share of Region
	Direct Effect	Production Induced	Consumption Induced	Total Flow-on		
IMPACTS						
Gross Output (\$'000)	5,951	1,943	2,277	4,220	10,171	0.7%
Value Added (\$'000)	3,308	859	1,280	2,139	5,446	0.6%
Household Income (\$'000)	2,232	354	424	778	3,011	1.0%
Employment (no.)	42	14	17	31	73	0.7%
MULTIPLIERS						
						Type II
Gross Output (\$)	1.000	0.327	0.383	0.709	1.709	1.709
Value Added (\$)	0.556	0.144	0.215	0.359	0.915	1.647
Household Income (\$)	0.375	0.059	0.071	0.131	0.506	1.349
Employment (no./\$m)	7.1	2.3	2.9	5.2	12.2	1.732

The total impact amounts to \$10.2m of gross output for a contribution of \$5.4m to Gross Regional Product (GRP) (value added). Within that GRP, there are payments to households of \$3.0m. Earlier discussion indicated that the nature of employment in the industry made estimates of employment effects of little value. The estimates shown relate only to full-time or principal employment and do not include the various types of part-time employment. However, the ratio of flow-on to direct employment is likely to be a reasonable indicator of the extent to which all forms of employment in the fishing industry might generate flow-on employment in the rest of the economy.

The commercial fishing industry contributes about 0.6 per cent to the regional economy, although that is about 1.0 per cent in terms of household income. The household income effect reflects adjustments to include in that income a significant part of the earnings from those fishers who are running part-time fishing businesses and for part-time employment.

The multipliers shown in Table 4-8 are at levels similar to other small regions without a manufacturing base. For the fishing industry, the consumption-induced effects dominate the production-induced effects. The fishing industry uses some manufactured products including fuel and fishing gear, but these are not manufactured locally. On the other hand, payments to households is a significant proportion of gross output and the spending of that household income is of considerable benefit to the local providers of household goods and services. Thus, the consumption-induced flow-on effects are large relative to the production-induced effects.

In addition to the commercial fisheries reported above, the aquaculture industry produces \$5.418m of output and employs 77 people. On this basis the total impact (including flow-on effects) is estimated to be:

Gross output	\$9.1m	(0.6% of region)
Value added	\$5.49m	(0.6% of region)
Household income	\$2.65	(0.9% of region)
Employment	102	(0.9% of region)

These data indicate that aquaculture is of a similar level of significance in the Eurobodalla economy to that of commercial fishing. In this case, the estimated employment is a reliable estimate and possibly approximates the total employment in the commercial fishery but for aquaculture, most of that employment would be full-time positions. That contrasts with the commercial fishery where there are many working part-time.

4.4.2 The Economic Impact of the Proposed MP

The analysis of the economic impact of the proposed MP is limited to two of the several components, namely the impact on commercial fishing and the impact of MP maintenance and operating expenditures. This is primarily because there is limited information about how the creation of the MP and related zoning system will impact on the other activities using the marine resources.

The impact on commercial fishing is also uncertain. This arises because the zoning of the MP has yet to be determined and it is uncertain as to how that zoning system will impact on commercial fishing. The scenario developed earlier (Table 4-7) indicates a modest reduction in the commercial catch. The reductions are indicated by the varying level of gross output shown in the summary impact tables (Table 4-9 and Table 4-10).

In calculating the flow-on effects of the reduced fish catch, the assumption has been made that there will be no significant change in the underlying trends in fishing methods and technologies used by the various components of the fishery to make that catch. Put another way, the costs associated with the catch are generally similar to the present costs and scaled down in proportion to the reduction in the catch. This is consistent with an industry with many operators and where a proportion of those operators are taken out of the industry through a buy-out. A proportion of existing operators remain and the cost structure remains similar to what it is now. However, in this analysis, changes in the relative importance of the fishing industry components have been included in compiling the new fishing sector. This results in some adjustments to the multiplier values that have been used in calculating the new impacts.

The results are shown in Table 4-9 which indicates the new levels of economic activity for the fishing industry for the scenario relative to the base level. The differences between the scenarios and the base level are then shown in Table 4-10.

The reduction in the total contribution of commercial fishing to the Eurobodalla economy from the creation of the MP and the zoning system amounts to between 17 per cent and 21 per cent of the base (2004-05) level. In the context of the Eurobodalla economy, these impacts are small at 0.1 to 0.2 per cent of the Eurobodalla economy. Within the context of an economy that is growing by around two per cent per year, these economic impacts are small.

Table 4-9: Economic Impacts of the MP, Eurobodalla 2005

IMPACTS	Flow-on Effects			TOTAL IMPACT	
	Direct Effect	Production Induced	Consumption Induced		Total Flow-on
GROSS OUTPUT (\$'000)					
2005 Base	5,951	1,943	2,277	4,220	10,171
Base + Marine Park	4,794	1,522	1,829	3,351	8,145
VALUE-ADDED (\$'000)					
2005 Base	3,308	859	1,280	2,139	5,446
Base + Marine Park	2,697	675	1,028	1,703	4,401
HOUSEHOLD INCOME (\$'000)					
2005 Base	2,232	354	424	778	3,011
Base + Marine Park	1,799	278	341	619	2,418
EMPLOYMENT (no.)					
2005 Base	42	14	17	31	73
Base + Marine Park	34	11	14	24	58

Table 4-10: Change from Economic Impacts of MP, Eurobodalla 2005

IMPACT LOSSES	Flow-on Effects			TOTAL IMPACT	
	Direct Effect	Production Induced	Consumption Induced		Total Flow-on
Gross Output (\$'000)	-1,157	-421	-448	-870	-2,027
Value Added (\$'000)	-610	-183	-252	-435	-1,046
Household Income (\$'000)	-434	-76	-84	-159	-593
Employment (no.)	-8	-3	-3	-6	-14

The most important qualifier to these estimates is that they are based on the assumption that the affected businesses will 'disappear' from the regional economy. The reality will be different. The proposed buy-out of existing operators will in part provide some financial relief to offset the loss of fishing rights. This may result in little change to the wealth of affected households so that the welfare and consumption of those households will incur only minor changes. From an economic impact point of view, this should reduce the consumption-induced effects to a level substantially below those shown in Table 4-10. As a result, the reality will be much

smaller effects than those shown and may approximate those shown under the production-induced impacts column. That would make the impact on the economy less than 0.1 per cent..

One of the caveats noted earlier was that the Sydney fish market prices used to value the catch are likely to be significantly lower than those actually received. Where fish are sold into the local market, they may well earn premium prices as well as avoiding the handling, transport and commission charges associated with marketing in the major city markets. If that is the case, then the size of the industry and the size of the adjustments from the MP and associated zoning may be larger than indicated in this analysis.

The Eurobodalla Shire and its location on the NSW South Coast has a number of qualities that are perceived to be attractive and underpin the ongoing in-migration of residents to the region and an increasing number of visitors to the region including recreational fishers. The fishing potential of the region is part of that attraction.

The fishing attraction takes two general forms. First, the existence of the commercial fishing in the area provides a diverse array of fresh fish to consumers, restaurants and visitors. In recent years, households have been increasing their expenditure on quality foods and restaurant meals including fish, seen by many as providing a dietary advantage. The implications of a modest decline in those components of the fishery (estuary general and ocean trap and line) is unlikely to impact on that situation or the perception that Eurobodalla is a great place to enjoy fresh seafood. However, those existing perceptions need to be carefully protected in a region with a high dependence for its continued growth on new residents moving to the area and growth in visitors.

Second, the zoning arrangements and the decrease in commercial fishing in the area may lead to an improvement in recreational fishing, a positive outcome. Fishing is an important reason for visitors coming to the region and fishing is popular among residents in the region. There are also significant boating and related activities in the region that support recreational fishing. Those favourable perceptions also need to be protected and enhanced if there is an improvement in the potential for recreational fishing.

Although the impacts are small, it is important to recognise that there appears to be a large number of households that earn some household income from commercial fishing. Most of the commercial fishery seems to be comprised of small businesses with relatively small catches and only a few larger operators taking large catches (especially in the ocean hauling component). That provides the potential for the zoning arrangements to impact on many more households in the region than would normally be associated with a small overall economic impact.

The available data does not make it possible to quantify this factor or to come close at understanding the extent that households depend on income from commercial fishing. From Attachment 5, there were some 334 fishing businesses (not allowing for holders of more than one endorsement or the inactive endorsements) in 2004-05 plus others who might be fully or partly employed in the industry. This information gap is of concern and could be addressed during the processes leading to the development of the zoning arrangements in the MP.

4.4.3 Marine Park Maintenance and Operations

Information on the management and operations costs associated with the MP has been provided by the MPA. For 2004-05 these are estimated to be \$1.2m. These have been used to estimate the total impact of these operations in Eurobodalla as shown in Table 4-11. These estimates use the multipliers for the government administration sector to estimate the total impact from the estimated actual expenditures.

Table 4-11: Estimated Impact of Maintenance and Operations

	Gross Output	Value Added	Household Income	Employment
	\$m	\$m	\$m	No
Direct Impact	1.201	0.671	0.317	7
Total Impact	1.898	1.045	0.456	11
Multiplier	1.58	0.87	0.38	0.009

The total impact of these operations is estimated to be \$1.9m terms of GRP (value added), and involve 11 jobs with households receiving \$0.46m.

The above estimates do not take into account the impact of funds used in any buy-back of fishing licences. As indicated earlier, these payments seek to maintain the wealth of those impacted by the changes and the net result is that the consumption of those households is maintained.

4.5 THE ECONOMIC IMPACTS IN 2010

4.5.1 Projected Input-Output Table for 2010

The projected input-output table for 2010 is shown in aggregated form in Table 4-12

Table 4-12: Aggregated Input-output Table 2010

	Ag Forestry	Trade	Public										
	Fishing	Accommodati	Personal	TOTAL	H-hold Exp	O.F.D	Exports	Total					
Ag/Forest/Fish	2392	2	7677	1	59	5234	53	311	15729	3044	6651	15712	41136
Mining	26	42	916	56	1454	314	170	409	3386	63	296	1021	4766
Manufacturing	1405	178	22158	386	31136	20609	7147	6631	89649	36467	8132	34920	169168
Utilities	212	4	966	1369	281	3953	2816	2016	11615	12190	719	1160	25685
Building	55	10	19	11	137	1033	3380	181	4826	0	155046	56950	216822
Trade/Accommodati	3121	323	6887	724	10236	20601	13201	9378	64472	214521	10840	253858	543691
Business Svcs	2151	552	13029	1577	21897	81369	72818	26998	220391	178142	14547	10578	423658
Public/Personal Svcs	246	79	1142	128	557	6901	5168	14313	28535	98247	194362	38026	359170
TOTAL	9609	1190	52794	4251	65757	140014	104753	60237	438603	542673	390594	412225	1784096
H-hold Income	11043	306	21912	4096	35931	99659	45415	126648	345009	0	0		345009
O.V.A.	6087	2026	25746	11058	62889	145371	211411	115118	579706	123200	11560		714466
Imports	14398	1244	68716	6280	52246	158647	62080	57167	420777	243941	57335		722054
TOTAL	41136	4766	169168	25685	216822	543691	423658	359170	1784096	909814	459489	412225	3565625
Employment	456	10	794	85	1237	4793	1678	3954	13007				

The key characteristics of the 2010 Eurobodalla economy compared to 2005 are as follows:

	2005	2010
Gross Regional Product (GRP)	\$872m	1059m
Gross Regional Product per person employed	\$77,976	\$81,418
Exports from Eurobodalla	\$276m	412m
Imports to Eurobodalla	\$640m	722m
Number employed	11,185	13,007
Average earnings from employment	\$26,550	\$26,524
Household income from employment	\$242m	345m
Household expenditure	\$808m	\$910m

There is an overall increase in the GRP of 22 per cent over the five years. That is attributed to growth in employment of 16 per cent and the remainder to growth in productivity.

The development of the economy sees a narrowing of the gap between imports and exports and a rise in the share of household income from employment relative to household expenditure. This represents a lessening of the dependence on social welfare, superannuation payments and reduced savings to fund the growth in the level of household expenditure. In effect, this reflects a deepening of the economy as it grows so that there is an increase in the local capacity to meet the needs of the population and visitors, especially in the categories of specialised services. There is also a growth in services that are targeted at businesses

The industries with significant growth in the Eurobodalla economy are highlighted in Figure 4-6 (gross output) and Figure 4-7 (employment).

There is little growth in primary and secondary industries, but significant growth among the service industries and some in building. The service industry growth includes those with low skills and part-time employment such as in restaurants and accommodation and retail trade and into services where there is a substantial employment of professionals such as health and some areas of business services. This development should lead to a more diverse economy and one that is more robust in the face of external shocks.

Figure 4-6: Gross Output by Industry, 2005 and 2010

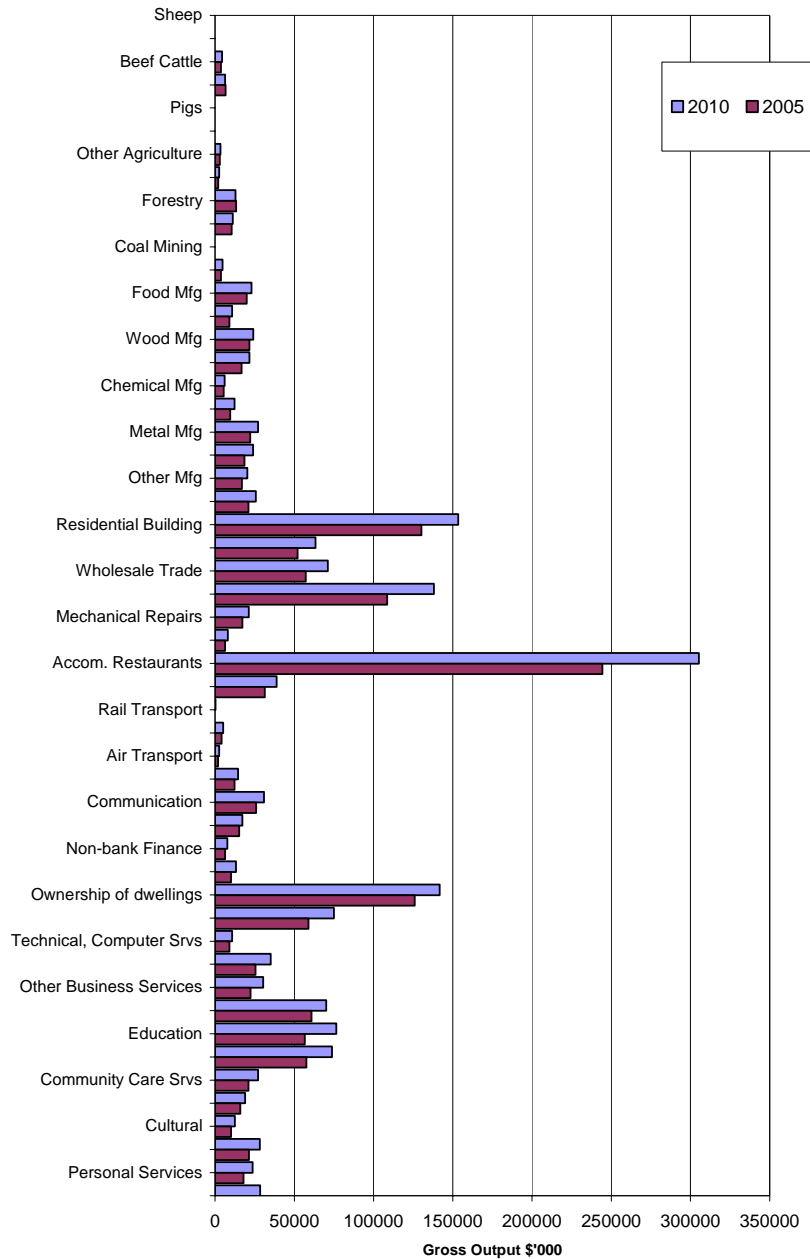
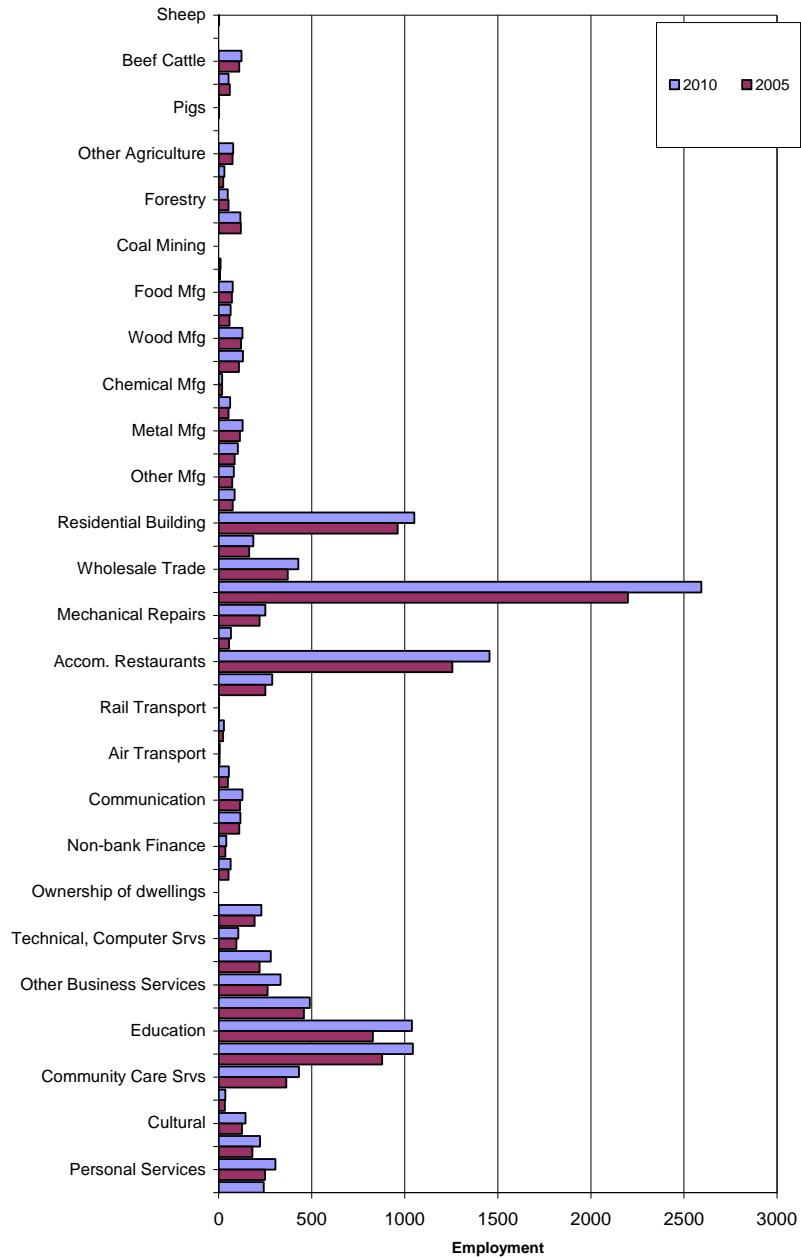


Figure 4-7: Employment by Industry, 2005 and 2010



4.5.2 The Economic Impacts of the Fishery, 2010

The economic impact of the fishery in 2010 has been estimated by including the specification used in 2005 within the 2010 input-output table. This provides an estimate of the contribution of the fishery which is unchanged from 2005 to the economy in 2010. The purpose was to test

whether there has been any significant change in the multipliers for the industry. The result is shown in Table 4-13 with a summary of the differences in Table 4-14.

Table 4-13: Regional Economic Impacts of the MP, 2010

	Flow-on Effects				TOTAL IMPACT	Share of Region
	Direct Effect	Production Induced	Consumption Induced	Total Flow-on		
IMPACTS						
Gross Output (\$'000)	5,951	1,961	2,278	4,239	10,190	0.6%
Value Added (\$'000)	3,308	869	1,280	2,150	5,457	0.5%
Household Income (\$'000)	2,232	333	398	731	2,963	0.9%
Employment (no.)	42	13	16	29	71	0.5%
MULTIPLIERS						
						Type II
Gross Output (\$)	1.000	0.330	0.383	0.712	1.712	1.712
Value Added (\$)	0.556	0.146	0.215	0.361	0.917	1.650
Household Income (\$)	0.375	0.056	0.067	0.123	0.498	1.327
Employment (no./\$m)	7.1	2.1	2.7	4.8	11.9	1.685

The results are based on the assumption of no change in the fishery. There is no significant change in the multipliers estimated from the 2010 input-output table but the values are slightly higher than for 2005. That was expected from the growth in the economy that adds to the capacity to meet local demand from local suppliers. Given that the multipliers are very similar, it is concluded that the impact of the MP in 2010 will be of a similar magnitude to that estimated to 2005. A comparison of the base impacts in 2005 and 2010 shown in Table 4-14 indicates that there is a small increase in the impacts measured in terms of gross output and value added while employment and household income impacts are slightly lower. This is a consequence of the deepening of the economy involving an increased capacity to supply inputs to the fishing and other industries.

Table 4-14: Comparison of the 2005 and 2010 Base Impacts

	Flow-on Effects				TOTAL IMPACT
	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	
Gross Output (\$'000)	0	18	1	19	19
Value Added (\$'000)	0	11	0	11	11
Household Income (\$'000)	0	-21	-26	-47	-47
Employment (no.)	0	-1	-1	-2	-2

The larger economy in 2010 means that the relative contribution of the fishing industry to the Eurobodalla economy in 2010 is slightly smaller than in 2005. In 2010 that contribution is at about 0.5 per cent of value added compared to 0.6 per cent in 2005. For household income it is 0.9 per cent compared to 1.0 per cent in 2005.

It would appear that over the next five to ten years, the relative importance of commercial fishing to the Eurobodalla economy will steadily decline in

the absence of some unspecified major shock. That will arise mainly because of the continuing growth in the economy and increased diversity in its industry structure. The level of economic activity in commercial fishing will remain steady in the absence of the MP. The economic impact of the creation of the MP will be similar in magnitude in both 2005 and 2010 (and probably 2015). However, the significance of that impact will be relatively less important as the economy grows.

That situation does not preclude the possibility for the changes to have an impact on a significant number of local households that earn income from commercial fishing. That is an issue that might be addressed in developing the zoning arrangements for the MP.

Given the results of the economic impact assessment, there appears to be little risk to the perceptions that Eurobodalla is a high growth economy based on its attraction to new residents and visitors including recreational fishers. Even so, care should be taken in the consultation processes leading up to the reaching agreement on the zoning arrangements for the MP to prevent actions that may impact on the positive perceptions about the Eurobodalla economy.

5 SUMMARY AND CONCLUSIONS

The proposal to establish a MP in the Batemans Bay region is a significant conservation initiative which is expected to have only minor economic impacts on the adjacent Eurobodalla area. This study provides an opportunity to assess in advance of making the zoning arrangements, the scope and size of the likely economic impacts on the economy and the industries in that economy. That assessment extends over a decade to 2015 to enable consideration of possible changes in the economy and industries that might enhance or ameliorate those impacts.

The study involved three main tasks:

- Developing an understanding of the economic structure and trends in Eurobodalla region economy.
- Building analytical models that can provide information on the economy and can be used to analyse the economic impacts of the changes resulting from the MP proposal and associated zoning arrangements. Input-output models were used for these tasks.
- Undertaking the economic impact analysis including the development of information about how the MP will impact on industries related to the areas included in the MP.

The Eurobodalla economy has experienced high rates of population and employment growth over two decades and that growth seems set to continue. The population does have a high proportion of retirees and so a low proportion of the population is in employment. There is also a moderate level of mobility among those in the workforce as indicated by the journey to work data. Those movements highlight the potential of Eurobodalla as a preferred place to live.

The economic structure of the region is highlighted by analyses of the employment by industry data. This information is also critical for the construction of the input-output models for the region. The building of the projected input-output tables is based on estimates of growth for each of the 106 industries and take into account previous growth, known and planned developments, and information about overall industry trends in the NSW and the Eurobodalla economy.

Eurobodalla is a small growing economy that represents about 0.3 per cent of the NSW economy. The traditional natural-resource based industries include commercial fishing while farming activities are concentrating on beef cattle. The main force for growth is the rising population of up to 1000 per year. In addition visitor numbers have climbed to around one million a year generating expenditures of around \$250m, including a significant amount from recreational fishers. That drives a large building industry and a rapid expansion of services provided to households and visitors. Services targeted at businesses remain weak. Around 49 per cent

of household income is derived from employment so that the dependence on social welfare payments and superannuation is much higher in Eurobodalla than the average for NSW.

The future development of Eurobodalla is likely to be based on a continuation of those trends toward an economy with a high level of dependents and a growing reliance on non-employment sources of household income. The area would continue to lose young people after completing secondary education. An issue that may arise could be the limited employment opportunities for males in a predominately service economy. On the positive side, the larger economy is likely to generate opportunities to deepen the economy through manufacturing, transport and business services (such as financial planning) to service local needs.

With the baby boomers approaching retirement this may add further stimulus to Eurobodalla as they seek apartments and residences. A trend in this direction has already become evident in recent building data for Eurobodalla. This would complement the already strong level of visitation to Eurobodalla.

The MP will be implemented through a zoning plan and the activities that are permitted in the various zones. The most impacted industry will be commercial fishing. A major task in the study was to estimate the economic impacts of the reduction in commercial fishing on the local economy.

To assess the economic impacts on commercial fishing a baseline level of production from commercial fishing was established using data from the DPI for both the Batemans Bay/Two-fold Shelf Marine Bioregion and for that portion of the bioregion to be included in the MP. These data supported the development of a profile of the components that make up the commercial fishing industry. However, it was not possible to develop that profile on a business enterprise basis with the available data. The information that was available suggested that the commercial fishing industry impacts will be limited to those under NSW management with little affect on AFMA managed areas.

In 2004-05, the fishery in the Batemans Bay/Two-fold Shelf Marine Bioregion produced a catch of \$19.5 m including \$8.8m in aquaculture (oysters). Abalone was the largest contributor at \$3.1m while estuary general and ocean hauling were each over \$2m.

The fishery appears to be comprised of mainly small operators with many working part time with high levels of casual employment. Total employment was not able to be estimated. The fishery appeared to be mature without strong trends overall. However, some components of the fishery experience high growth (ocean hauling) while others tended to decline slowly, while all were subjected to large variations in catch and catch value from year to year.

For 2004-05, commercial fishing was estimated to produce a catch of \$10.6m of which \$5.9m was sourced from the proposed MP area. Abalone, ocean hauling and fish trawl were those with the highest shares of their catch sourced from within the MP area.

Taking account of the flow-on impacts, commercial fishing contributed \$5.4m to the (2004-05) GRP of Eurobodalla, equivalent to 0.6 per cent of the GRP. The contribution to household income was a less precise calculation because of limited data, but it could be as much as a 1.0 per cent contribution to household income from employment. In the future up to 2015, it was expected that commercial fishing would remain at about the same level of output, but with the Eurobodalla economy growing by around two per cent per year, commercial fishing's relative contribution to the economy would steadily decline.

The impact of the MP and associated zoning arrangements was modelled from an indicative reduction in commercial fishing. This scenario results in a reduction in catch value of \$1.16m or 19 per cent of the 2005-05 level. These changes were estimated to reduce the Eurobodalla GRP by between \$1.0m in 2004-05 and similar amounts in 2010. The changes are at most 0.1 per cent of the Eurobodalla economy.

Those economic impacts on the Eurobodalla economy of the MP and zoning arrangements are small. They are likely to be even smaller given the buy-back arrangements that protect the household wealth and consumption expenditure of fishers who leave the industry.

Whilst the impacts may be small in aggregate there will be losses of mainly part-time commercial fishing income for some householders where one or more members have been employed with fishers exiting the industry under buyback arrangements.

On the other hand, it seems likely that there will be some loss of household income from commercial fishing for a large number of householders (there are 334 holders of endorsements in 2004-05). This would involve a reduction in the number fishing and a reduction in both full-time and part-time employment. There is limited information about this group and it remains an issue to be addressed in the consultations about the zoning arrangements.

Commercial fishing supplies a wide variety of fresh fish to local consumers, restaurants and visitors. This is an attribute that forms part of the attraction of visitors and residents to Eurobodalla. While the reduction in commercial fishing is modest, care should be taken to maintain those perceptions.

ATTACHMENT 1 ANZSIC INDUSTRY CLASSIFICATION

Sector Aggregation	107 IO Sectors
Sheep	Sheep for meat and wool
Grains	Grains inc. cereals, oilseeds, legumes
Beef Cattle	Beef cattle
Dairy Cattle	Dairy cattle
Pigs	Pigs
Poultry	Poultry for meat and eggs
Other Agriculture	Other agriculture, inc. nurseries, vegetables, fruit, cotton, tobacco, sugar cane, herbs, hay, goats, horses, deer, beekeeping, pet breeding.
Services to agriculture	Cotton ginning, shearing and wool classing, aerial ag services, contract harvesting, seed grading, land clearing; hunting
Forestry	Forestry and logging
Fishing	Commercial fishing and aquaculture
Mining	Coal; oil and gas
	Iron ores
	Non-ferrous metal ores
	Other mining inc. construction materials
	Services to mining inc. exploration
Food Mfg	Meat and meat products
	Dairy products
	Fruit and vegetable products
	Oils and fats
	Flour and cereal foods
	Bakery products
	Confectionery
	Other food products inc sugar, seafood, animal/bird feed, spices, herbs, savoury snacks, tea, honey - blended etc.
	Soft drinks, cordials, syrups
	Beer and malt
	Wine and spirits
	Tobacco products
	Textile Mfg
Textile products inc. blinds, awnings, curtains, sails, tents, carpets, rugs, ropes, nets, string, cord, bags, sacks etc.	
Knitting mill products	
Clothing	
Footwear	
Leather and leather products	
Wood Mfg	Sawmill products inc sawn timber, woodchips, dressed timber, plywood, veneer, fabricated boards
	Other wood products inc. structural components - windows, doors, trusses, frames, containers, pallets, cases, log preservation.
Printing/Publishing	Pulp, paper and paper-board
	Paper bags and products
	Printing; services to printing
	Publishing; recorded media etc
Chemical Mfg	Petroleum and coal products
	Basic chemicals inc. fertilisers, industrial gas/chemicals, synthetic resins, dyes, acid, salt, urea, fluoride, chlorine etc.
	Paints
	Pharmaceuticals etc inc. drugs, medicines, medicinal preparations
	Soap and detergents
	Cosmetics and toiletries
	Other chemical products inc. explosives, ink, glue, polish, cleaners
	Rubber products

Sector Aggregation	107 IO Sectors
	Plastic products
Mineral Mfg	Glass and glass products
	Ceramic products
	Cement, lime and concrete slurry
	Plaster; other concrete products
	Non-metallic mineral. products nec inc. abrasives, chalk, stone products, insulation materials, ag/hydrated/quick lime,
Metal Mfg	Iron and steel rolling, galvanising, casting, forging, pipes and tubes
	Basic non-ferrous metals inc alumina, aluminium, copper, silver, lead, zinc, gold, bronze, nickel, tin – smelting, refining, rolling, drawing, extruding, casting, forging
	Structural metal products inc girders, reo-mesh, architectural products, doors, gates, windows etc
	Sheet metal products inc. containers, guttering, downpipes, tanks
	Fabricated metal products inc. tools, general hardware, springs, wire, nails, nuts, bolts, screws, rivets, metal coating, non-ferrous pipe fittings, miscellaneous metal products
Mach/Equip Mfg	Motor vehicles and parts etc
	Ships and boats
	Railway equipment
	Aircraft
	Scientific etc equipment inc photographic, optical, medical, surgical
	Electronic equipment inc. computer, telecommunication, radio, TV
	Household appliances
	Other electrical equipment inc. cable, wire, batteries, lights, signs, fuses, electric motors, generators, welding equip. etc
	Agricultural, mining, construction machinery inc lifting/handling
	Other machinery and equipment inc. food processing, machine tool/part, pumps/compressors, commercial heating/cooling equip.
Other Mfg	Prefabricated buildings
	Sheet metal, wooden and upholstered furniture, mattresses, pillows, cushions (not rubber)
	Other manufacturing inc jewellery, toy, sporting goods, brushes, miscellaneous goods
Utilities	Electricity generation, distribution and supply
	Gas distribution and town gas mfg/dist. Via mains
	Water supply, sewerage and drainage services
Residential Building	Residential building
Other Construction	Non-residential building, Non-building construction inc. road/bridge, earthmoving, irrigation, mitigation
Wholesale Trade	Resale of new or used goods to business or institutional users.
Retail Trade	Resale of new or used goods to final consumers for personal or household consumption eg main-street establishments
Mechanical Repairs	Mechanical repairs
Other Repairs	Other repairs in. household equipment repairs etc
Accommodation Restaurants	Accommodation inc. hotels, motels, guest houses, youth hostels, student residences, camping grounds, caravan parks; cafes & restaurants; hospitality clubs, pubs, taverns and bars
Road Transport	Road freight and passenger transport
Rail Transport	Rail; pipeline; other inc. cable car, chair lift etc
Water Transport	International, coastal, inland water transport inc sea freight, cruise operation, boat charter, ferry.
Air Transport	Scheduled domestic and international air transport and non-scheduled air & space transport.
Transport Services	Services to road, water and air transport; travel agency, freight forwarding, customs agency; storage
Communication	Postal, courier, telecommunications
Banking	Reserve Bank; development, savings and trading banks
Non-bank Finance	Building societies, credit unions, money market dealers, deposit taking

Sector Aggregation	107 IO Sectors
	financiers, financial asset investors etc
Insurance	Insurance and services Services to finance and investment inc. brokers
Ownership of dwellings	Residential Property Operators
Property Services	Commercial property operators and developers, real estate agents, non-financial asset investors, machinery and equipment hiring and leasing
Technical, Computer Services	Scientific research, architectural, surveying, consultant engineering, other technical services, data processing, information storage and retrieval, computer maintenance and consultancy services.
Legal/Account/Mgt/Mkt'g	Legal, accounting, advertising, commercial art and display, market research, business administration and management services
Other business services	Employment placement, contract staff, secretarial, pest control, cleaning, packing, etc.
Public Administration	Federal, state, local government administration; justice Defence
Education	Education
Health	Hospitals, nursing homes, medical and health services; veterinary services
Community Care Services	Child care, accommodation for the aged, residential care services
Entertainment/Media	Motion picture, film and video, radio and television
Cultural	Libraries, museums, parks and gardens, arts
Sport, Gambling	Sport, gambling and other recreation services
Personal Services	Personal and household goods hiring; laundries, drycleaners; photographic studios and processing, funeral directors etc, gardening, hairdressing etc; private households employing staff
Other Services	Religious organisations; Interest groups - business and professional associations; Public order and safety

ATTACHMENT 2 – SUMMARY DATA, EUROBODALLA

SECTOR	Gross O/P (\$'000)	Value-added (\$'000)	Income (\$'000)	Employ- ment (no.)	Exports (\$'000)	Imports (\$'000)
Sheep	119	65	51	3	53	16
Grains	-	-	-	-	-	-
Beef cattle	3,755	1,985	1,621	111	1,785	934
Dairy cattle	6,568	2,620	2,163	59	1,993	2,435
Pigs	-	-	-	3	-	-
Poultry	-	-	-	-	-	-
Other agriculture	3,042	1,660	1,362	74	1,100	862
Services to agric.; hunting	1,950	859	726	25	957	852
Forestry and logging	13,307	5,102	2,403	53	6,890	4,315
Commercial fishing	10,496	3,904	2,776	119	2,726	4,462
Coal; oil and gas	-	-	-	-	-	-
Iron ores	-	-	-	-	-	-
Non-ferrous metal ores	-	-	-	-	-	-
Other mining	3,725	1,823	258	8	808	966
Services to mining	-	-	-	-	-	-
Meat and meat products	3,376	660	283	12	1,136	562
Dairy products	11,342	2,473	701	21	3,274	2,419
Fruit and vegetable products	-	-	-	-	-	-
Oils and fats	-	-	-	-	-	-
Flour and cereal foods	-	-	-	-	-	-
Bakery products	4,407	1,612	920	34	271	1,948
Confectionery	-	-	-	-	-	-
Other food products	885	192	78	4	232	344
Soft drinks, cordials, syrups	-	-	-	-	-	-
Beer and malt	-	-	-	-	-	-
Wine and spirits	-	-	-	-	-	-
Tobacco products	-	-	-	-	-	-
Textile fibres, yarns etc	-	-	-	-	-	-
Textile products	2,996	684	553	22	344	1,866
Knitting mill products	-	-	-	-	-	-
Clothing	6,003	1,183	1,071	36	703	3,891
Footwear	-	-	-	-	-	-
Leather and leather products	-	-	-	-	-	-
Sawmill products	13,165	4,808	1,061	48	5,095	3,501
Other wood products	8,544	2,800	1,569	72	292	2,733
Pulp, paper and paperboard	-	-	-	-	-	-
Paper bags and products	-	-	-	-	-	-
Printing; services to printing	4,985	1,914	1,323	43	111	2,086
Publishing; recorded media etc	11,727	4,885	2,132	66	387	4,225
Petroleum and coal products	3,454	385	329	9	487	2,862
Basic chemicals	-	-	-	-	-	-
Paints	1,270	454	136	6	64	587
Pharmaceuticals etc	-	-	-	-	-	-
Soap and detergents	-	-	-	-	-	-
Cosmetics and toiletries	-	-	-	-	-	-
Other chemical products	-	-	-	-	-	-
Rubber products	-	-	-	-	-	-
Plastic products	798	224	80	4	44	418
Glass and glass products	1,405	433	417	13	92	630
Ceramic products	2,284	771	573	15	158	1,206
Cement, lime and concrete slurry	4,923	1,400	693	20	22	1,590
Plaster; other concrete products	931	371	159	5	17	170
Non-metallic min. products nec	-	-	-	-	-	-
Iron and steel	7,414	1,996	880	28	1,216	2,548

Eurobodalla (cont)

SECTOR	Gross O/P (\$'000)	Value-added (\$'000)	Income (\$'000)	Employ- ment (no.)	Exports (\$'000)	Imports (\$'000)
Basic non-ferrous metals etc	7,194	1,625	721	22	4,328	3,118
Structural metal products	4,600	1,535	965	41	124	1,354
Sheet metal products	1,439	474	273	12	60	285
Fabricated metal products	1,647	507	255	11	117	605
Motor vehicles and parts etc	10,454	1,880	1,305	43	1,330	5,876
Ships and boats	1,067	279	-	8	459	585
Railway equipment	-	-	-	-	-	-
Aircraft	1,451	343	322	9	606	887
Scientific etc equipment	580	79	69	3	277	446
Electronic equipment	750	90	78	5	172	601
Household appliances	1,764	263	130	5	88	941
Other electrical equipment	-	-	-	-	-	-
Agricultural, mining etc machinery	610	103	95	4	80	341
Other machinery and equipment	1,762	305	276	9	539	1,185
Prefabricated buildings	3,884	1,417	356	12	3,323	1,224
Furniture	7,709	2,473	911	39	2,537	2,172
Other manufacturing	5,326	847	583	22	1,778	4,014
Electricity	8,126	5,006	2,382	45	-	2,309
Gas	-	-	-	-	-	-
Water, sewerage and drainage	13,027	7,542	1,284	31	408	2,842
Residential building	130,243	56,528	27,883	961	-	35,270
Other construction	52,000	26,419	4,807	164	26,112	10,083
Wholesale trade	57,219	23,570	10,169	371	2,118	9,439
Retail trade	108,636	52,543	43,134	2,198	24,993	28,081
Mechanical repairs	17,250	11,761	5,716	220	2,213	3,294
Other repairs	6,346	4,210	1,183	56	-	1,153
Accommodation, cafes & restaurants	244,432	103,403	25,130	1,255	152,055	87,147
Road transport	31,438	14,684	6,688	251	2,710	6,863
Rail, pipeline, other transport	196	100	91	3	-	40
Water transport	4,144	951	883	24	2,122	1,536
Air and space transport	1,852	571	105	5	220	589
Services to transport; storage	12,344	8,161	1,256	50	1,355	1,254
Communication services	25,952	15,275	3,306	116	-	4,747
Banking	15,248	9,691	4,136	111	-	2,584
Non-bank finance	6,355	2,508	1,360	36	-	1,772
Insurance	7,538	4,583	1,459	35	-	1,587
Services to finance etc	2,503	2,208	732	18	-	59
Ownership of dwellings	126,003	108,086	-	-	0	6,487
Other property services	58,963	22,000	4,362	194	-	12,606
Scientific research etc	9,075	5,428	3,320	95	-	1,350
Legal, accounting etc services	25,543	14,186	6,375	220	-	3,373
Other business services	22,333	7,514	4,702	263	-	6,222
Government administration	60,891	34,083	16,050	458	-	13,374
Defence	-	-	-	-	-	-
Education	56,596	48,957	30,610	829	1,094	4,176
Health services	57,600	46,821	30,598	879	-	5,869
Community services	21,086	9,351	6,738	363	-	5,828
Motion picture, radio etc	15,905	7,126	1,230	33	4,822	3,516
Libraries, museums, arts	10,022	6,691	4,253	125	1,251	1,620
Sport, gambling etc	21,396	9,413	4,791	181	5,414	6,253
Personal services	17,927	10,242	5,093	249	3,074	4,436
Other services	20,530	15,635	6,479	188	708	2,390
Household Expenditure		109,478				222,029
Capital Expenditure		9,950				67,942
TOTAL	1,451,827	872,158	296,960	11,185	276,746	640,185

ATTACHMENT 3: EMPLOYMENT GROWTH PROJECTIONS

Industry	Cumulative Growth		Employment			Projected Employment			Employment Change			Industry	Cumulative Growth		Employment			Projected Employment			Employment Change					
	1991-1996	1996-2001	2,001	2,005	2,010	2001-2005	2005-2010	2010	2001-2005	2005-2010	2010		1991-1996	1996-2001	2,001	2,005	2,010	2001-2005	2005-2010	2010	2001-2005	2005-2010	2010			
	%	%	No.	No.	No.	%	%	No.	%	%	No.		%	%	No.	No.	No.	%	%	No.	%	%	No.	%		
			Workplace			Workplace			Workplace						Workplace			Workplace			Workplace					
Sheep	-36.7	17.3	3	3	3	0.0	0.0																			
Grains	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Beef cattle	-40.9	46.1	98	111	123	12.6	11.0																			
Dairy cattle	17.8	-33.9	70	59	53	-15.1	-10.5																			
Pigs	na	na	3	3	3	0.0	0.0																			
Poultry	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Other agriculture	65.7	-32.1	70	74	78	4.9	6.0																			
Services to agric.; hunting	466.9	26.1	21	25	31	20.4	25.6																			
Forestry and logging	-30.4	-4.7	58	53	48	-7.8	-9.6																			
Commercial fishing	-0.9	-8.0	127	119	117	-6.5	-1.7																			
Coal; oil and gas	na	-14.7	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Iron ores	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Non-ferrous metal ores	na	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Other mining	-77.9	98.9	7	8	10	14.8	18.8																			
Services to mining	226.6	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Meat and meat products	21.2	-24.4	11	12	12	4.1	5.1																			
Dairy products	33.1	54.4	21	21	22	4.1	5.1																			
Fruit and vegetable products	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Oils and fats	na	1.2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Flour and cereal foods	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bakery products	-32.1	-34.8	32	34	38	8.2	10.4																			
Confectionery	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Other food products	-2.0	-100.0	4	4	4	4.1	5.1																			
Soft drinks, cordials, syrups	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Beer and malt	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wine and spirits	na	110.2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tobacco products	na	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Textile fibres, yarns etc	-41.2	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Textile products	26.6	19.8	21	22	25	8.2	10.4																			
Knitting mill products	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Clothing	512.0	50.2	34	36	40	8.2	10.4																			
Footwear	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Leather and leather products	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sawmill products	33.1	-29.5	50	48	45	-3.9	-4.9																			
Other wood products	-23.6	5.2	69	72	83	4.1	14.8																			
Pulp, paper and paperboard	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Paper bags and products	na	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Printing; services to printing	-15.6	37.6	38	43	50	12.6	15.9																			
Publishing; recorded media etc	165.7	16.4	56	66	80	17.0	21.7																			
Petroleum and coal products	-100.0	na	9	9	9	0.0	0.0																			
Basic chemicals	na	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Paints	na	na	5	6	6	4.1	5.1																			
Pharmaceuticals etc	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Soap and detergents	na	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Cosmetics and toiletries	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Other chemical products	-100.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Rubber products	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Plastic products	na	6.8	3	4	4	5.4	6.6																			
Glass and glass products	na	65.5	11	13	15	17.0	21.7																			
Ceramic products	65.7	-6.3	14	15	16	6.1	7.7																			
Concrete, cement, lime	50.0	1.1	17	20	25	14.8	26.7																			
Plaster, other concrete products	-42.0	-45.1	5	5	6	8.2	10.4																			
Non-metallic min. products nec	-52.4	18.5	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Iron and steel	-100.0	na	26	28	32	10.4	13.1																			
Basic non-ferrous metals etc	na	na	20	22	25	10.4	13.1																			
Structural metal products	69.2	-34.5	37	41	47	10.4	13.1																			
Sheet metal products	85.7	-12.2	11	12	13	8.2	10.4																			
Fabricated metal products	34.1	-58.2	10	11	12	8.2	10.4																			
Motor vehicles and parts etc	19.6	93.0	34	43	53	26.2	22.9																			
Ships and boats	-48.7	77.7	6	8	9	26.2	12.7																			
Railway equipment	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Aircraft	-100.0	na	7	9	11	21.6	27.6																			
Scientific etc equipment	81.0																									

ATTACHMENT 4: – JOURNEY TO WORK TABLES

Place of work of Eurobodalla residents

Eurobodalla Residents	Workplace										Total commuters out	Work in Euroodalla %
	Shoalhaven (C)	Illawarra SD Bal	Bega Valley	Eurobodalla	South-eastern SD Bal	NSW Balance	Australian Capital Territory	Other States	Not Stated	Total		
Agriculture Forestry Fishing	0	0	0	371	11	54	0	0	0	436	65	85.1
Mining	0	0	0	6	0	3	0	0	0	9	3	66.7
Manufacturing	3	0	6	554	0	54	9	0	0	626	72	88.5
Electrcity Gas Water Supply	0	0	0	66	3	3	0	0	0	72	6	91.7
Construction	7	3	9	561	9	325	10	0	0	924	363	60.7
Wholesale Trade	0	0	0	303	0	24	5	0	0	332	29	91.3
Retail Trade	7	3	9	2024	0	57	3	0	0	2103	79	96.2
Accom. Cafes Restaurants	5	0	4	1017	10	29	5	0	0	1070	53	95.0
Transport & Storage	0	0	3	230	0	38	3	0	0	274	44	83.9
Communication Services	0	3	3	93	3	9	6	0	0	117	24	79.5
Finance & Insurance	6	0	3	155	0	19	0	0	0	183	28	84.7
Property, Business Services	3	0	0	575	6	56	19	0	0	659	84	87.3
Government Admin, Defence	6	0	18	383	0	29	9	0	0	445	62	86.1
Education	5	0	19	672	0	18	6	0	0	720	48	93.3
Health, Community Services	6	5	7	964	7	63	9	0	0	1061	97	90.9
Cultural, Recrtnal Services	3	0	3	242	3	23	0	0	0	274	32	88.3
Personal, Other Services	3	3	6	331	6	45	6	0	0	400	69	82.8
Non-classifiable economic units	0	0	0	28	0	7	0	0	0	35	7	80.0
Not stated	0	0	0	37	0	0	0	0	0	37	0	100.0
TOTAL	54	17	90	8612	58	856	90	0	0	9777	1165	88.1

Place of residence of Eurobodalla workers

Eurobodalla Workers	Place of Residence									Total Commuters In	Eurobodalla Residents %
	Shoalhaven (C)	Illawarra SD Bal	Bega Valley	Eurobodalla	South-eastern SD Bal	NSW Balance	Australian Capital Territory	Other States	Total		
Agriculture Forestry Fishing	7	0	10	371	6	10	3	3	410	39	90.5
Mining	0	0	0	6	0	0	0	0	6	0	100.0
Manufacturing	9	6	8	554	0	18	0	0	595	41	93.1
Electrcity Gas Water Supply	0	0	0	66	0	0	0	0	66	0	100.0
Construction	8	6	3	561	6	19	6	3	612	51	91.7
Wholesale Trade	3	3	0	303	0	4	0	0	313	10	96.8
Retail Trade	24	3	14	2024	9	46	0	4	2124	100	95.3
Accom. Cafes Restaurants	15	0	10	1017	3	17	0	0	1062	45	95.8
Transport & Storage	3	0	0	230	0	10	0	0	243	13	94.7
Communication Services	3	0	0	93	0	0	0	3	99	6	93.9
Finance & Insurance	6	0	0	155	0	6	0	0	167	12	92.8
Property, Business Services	6	0	6	575	3	13	0	0	603	28	95.4
Government Admin, Defence	4	0	5	383	0	6	0	0	398	15	96.2
Education	13	0	12	672	0	8	0	0	705	33	95.3
Health, Community Services	16	3	20	964	3	19	3	0	1028	64	93.8
Cultural, Recrtnal Services	0	3	0	242	0	4	0	0	249	7	97.2
Personal, Other Services	8	0	3	331	0	0	0	0	342	11	96.8
Non-classifiable economic units	0	0	0	28	0	0	0	0	28	0	100.0
Not stated	0	0	0	37	0	0	0	0	37	0	100.0
TOTAL	125	24	91	8612	30	180	12	13	9087	475	94.8

ATTACHMENT 5 – FISHERY STATISTICS – BATEMANS BAY TWOFOLD SHELF BIOREGION

Year	Estuary General	Fish Trawl	Ocean Hauling	Ocean Prawn Trawl	Ocean Trap and Line	Abalone	Lobster	Total
Fishing Businesses (no)								
1997/98	249	22	52	9	98	54	38	522
1998/99	265	22	48	9	99	63	33	539
1999/00	237	25	33	21	111	61	31	519
2000/01	227	25	31	15	106	59	31	494
2001/02	181	26	31	13	98	53	41	443
2002/03	175	25	22	10	96	46	47	421
2003/04	153	22	22	3	68	66	37	371
2004/05	133	23	18	2	70	61	27	334
Catch (kg)								
1997/98	399,156	393,431	634,902	7,186	300,234	72,824	21,323	1,829,055
1998/99	500,522	174,035	414,668	10,845	286,717	148,359	26,120	1,561,265
1999/00	459,247	305,870	443,232	23,022	314,142	151,627	20,105	1,717,245
2000/01	483,725	295,745	594,046	10,739	298,494	137,555	25,713	1,846,016
2001/02	537,007	217,114	1,301,700	25,442	388,901	112,797	34,422	2,617,384
2002/03	648,355	363,026	978,237	33,592	299,621	97,857	38,847	2,459,534
2003/04	551,351	424,424	1,166,592	24,701	218,124	104,333	36,031	2,525,555
2004/05	431,471	304,179	1,198,678	1,378	211,914	77,559	28,456	2,253,635
Catch (\$)								
1997/98	1,747,813	979,020	1,036,568	29,455	1,457,789	2,826,553	763,883	8,841,082
1998/99	2,072,803	516,674	685,768	65,232	1,409,924	5,547,836	864,066	11,162,304
1999/00	2,573,177	981,336	874,149	215,574	1,530,838	5,636,970	802,292	12,614,336
2000/01	2,149,277	974,015	963,513	81,238	1,605,563	6,636,715	1,087,404	13,497,725
2001/02	2,069,766	682,662	1,808,795	121,478	2,211,680	4,808,258	1,547,731	13,250,371
2002/03	2,543,074	1,045,689	1,347,892	142,134	1,693,393	3,646,475	1,654,618	12,073,276
2003/04	2,573,047	1,063,914	1,563,586	48,477	1,099,858	3,072,705	1,302,709	10,724,296
2004/05	2,026,247	1,059,225	2,429,388	24,419	970,739	3,102,360	1,027,390	10,639,767

FISHERY STATISTICS – PROPOSED MARINE PARK AREA

Year	Estuary General	Fish Trawl	Ocean Hauling	Ocean Prawn Trawl	Ocean Trap and Line	Abalone	Lobster	Total
Catch (kg)								
1997/98	73,802	173,986	331,071	3,141	108,357	62,566	8,876	761,800
1998/99	119,963	73,667	209,889	5,010	115,443	128,235	8,757	660,963
1999/00	136,348	95,700	241,932	10,134	121,852	130,716	8,899	745,580
2000/01	146,891	139,774	305,126	4,652	129,124	115,234	12,034	852,835
2001/02	109,971	104,584	757,966	2,664	174,103	98,253	11,765	1,259,306
2002/03	157,525	188,776	517,257	4,224	127,482	92,582	12,860	1,100,706
2003/04	142,647	216,458	639,336	12,239	90,150	88,353	10,924	1,200,108
2004/05	165,034	148,343	668,983	689	85,263	68,856	7,896	1,145,063
Catch (\$)								
1997/98	338,619	432,951	530,224	11,136	642,613	2,476,797	318,008	4,750,348
1998/99	790,748	218,701	347,213	22,778	628,134	4,923,259	289,688	7,220,520
1999/00	983,453	307,037	468,128	82,931	595,739	5,033,898	355,108	7,826,293
2000/01	640,682	460,338	494,938	27,523	643,677	5,719,215	508,891	8,495,264
2001/02	430,383	328,840	1,046,460	32,978	903,828	4,271,172	528,980	7,542,642
2002/03	748,586	543,765	713,568	40,454	684,515	3,498,078	547,762	6,776,728
2003/04	613,709	542,602	855,775	18,328	434,288	2,719,699	394,969	5,579,369
2004/05	638,868	516,566	1,381,165	9,232	366,063	2,754,244	285,061	5,951,200

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