
Economic Impacts Draft Zoning Plan Solitary Islands Marine Park

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Abbreviations and Glossary

DECCW	NSW Department of Environment, Climate Change and Water
DEWHA	Aust Govt Department of Environment, Water, Heritage and the Arts
I&I	NSW Department of Industry and Investment
MP	Marine Park
MPA	NSW Marine Parks Authority
SIMP	Solitary Islands Marine Park
TRA	Tourism Research Australia
ZP	Zoning Plan

Executive Summary

The purpose of this study was to identify, quantify and where possible value economic impacts which may occur in commercial and non-commercial activities as a result of recommended changes to the current zoning plan for the SIMP.

The study was completed as a desk-based research exercise supplemented with a limited number of telephone interviews focussing on the north of the marine park where draft zoning plan changes could possibly be more pronounced. Economic impacts were assessed for commercial fishing and aquaculture, recreational fishing, commercial marine tourism, other recreation, local business dependent activity and property prices.

Key findings include:

- Commercial fishing – a loss in producer surplus of \$43,000 per annum is estimated.
- Recreational fishers – overall recreational fishers are more likely to change location within the park than stop fishing in the region.
- Local businesses – some loss of income as a result of proposed zoning plan changes is possible. Small communities in the north of the park may be vulnerable in the short term to changes affecting recreational fishing.
- Property prices – regionally property prices are not likely to be impacted by the minor changes in economic values described in this report.

The concern of small communities in the north of the marine park was highlighted during consultation. The small communities of Sandon, Minnie Water, Woolli, Diggers Camp and Red Rock along with the larger centres of Yamba and Iluka presented strong concerns about the perceived impact of zoning plan changes. The analysis of the economic impact of zoning plan changes on recreational fishing in the SIMP reveals that on balance, the overall impact of changes are likely to be neutral. Nevertheless there is a spatial dimension to zoning change impacts with greater restrictions on use in the north than the south of the park. Some loss in income is expected.

Following zoning plan implementation, impacts should be monitored and joint MPA / community efforts to promote recreational fishing in the north of the park considered (eg reference to fishing opportunities through the MPA or national parks websites). These need not be expensive to implement.

It is noted that submission on the draft zoning plan may provide additional data upon which to understand the potential economic impacts of the proposals and will need to be given consideration alongside this report.

1. Introduction

1.1 Impact Assessment Purpose and Scope

The purpose of this report was to provide the NSW Marine Parks Authority (MPA) with an economic impact assessment of draft changes to the Solitary Islands Marine Park (SIMP) zoning plan.

Specifically, the objective of the study was:

- To identify, quantify and where possible value economic impacts which may occur in commercial and non-commercial activities as a result of recommended changes to the current zoning plan for the SIMP.

Economic impacts relate principally, but not exclusively, to changes in the level, type and value of commercial and recreational fishing. Impacts were assessed for both the south of the SIMP, focussed on the regional centre of Coffs Harbour and Woolgoolga, and the north of the SIMP which includes the small settlements of Sandon, Minnie Water, Wooli, Diggers Camp and Red Rock and attracts fishing vessels from Yamba and Iluka.

It is important to note that conclusions drawn from this study need to be tempered by the lack of an appropriately comprehensive commercial and recreational fishing data set for the SIMP at a geographic scale that would directly inform development of the zoning plan. The results contained in this report are based on information provided by Marine Park staff, officers at DECCW and I&I, and discussions with the Wooli Chamber of Commerce.

The 'flow on' economic impact to land based businesses in regional centres and small settlements is also addressed through a regional economic impact study prepared by the Centre for Agricultural and Resource Economics (CARE forthcoming).

1.2 Background

The MPA is currently reviewing the zoning plan (ZP) for Solitary Islands Marine Park (MP), which ensures the conservation of biodiversity in the marine park and regulates its use. Part of the review process has involved producing a draft zoning plan which incorporates changes recommended in earlier zoning plan review reports for the park. These changes were subsequently announced by Ministers Sartor and Whan in April 2010 as below:

- Improving access for recreational fishers by changing a small area of the Groper Island sanctuary zone to allow seasonal spearfishing and line fishing;
- Reducing the complexity of the zoning plan by straightening boundaries and simplifying recreational fishing restrictions around particular species;
- Reducing impacts of commercial fishing activities through a total prohibition on prawn trawling within 2 years;

- Improving protection for key habitats, increasing the area of sanctuary zone in the park from 12% to 20%; and
- Improving protection for the threatened grey nurse sharks and protecting a threatened algae at a small site at Muttonbird Island.

Further information is provided at:

<http://www.environment.nsw.gov.au/resources/MinMedia/MinMedia10041902.pdf>.

1.3 Project Method

The project was completed through a process that involved desk-based research, collation, analysis and write up of secondary data from published and unpublished sources (see project reference list and Table 1.1 below), and discussions with Marine Park Managers, NSW Department of Industry and Investment (I&I) and Department of Environment, Climate Change and Water (DECCW) staff and CARE Pty Ltd.

The project required:

- Description of commercial and non commercial MP activities;
- Documentation of the impact of zoning plan changes on MP activities;
- Identification of background trends relevant to the MP activity – Figure 1.1 below;
- Estimation of net incremental physical impacts of ZP changes;
- Analysis and quantification of economic impacts; and
- Project reporting.

A standalone chapter was prepared for each set of MP activities.

Table 1.1 Sources of Information to Estimate Changes in Economic Values

Example of activity	Information source/proxy measure
Commercial fishing and aquaculture	I&I catch records
Recreational fishing	MP reports and surveys
Commercial marine tourism activity e.g. charter fishing, diving, marine mammal watching	information from unpublished NSW Marine park licensing project
Recreation	Information on patronage of tours. MPA Recreational user surveys for SIMP
Local business activity dependent on MP	SIMP Business surveys (2005, and forthcoming) , SIMP Regional Economic Impact Assessment 2001, and forthcoming)
Property prices	Valuer-General information and online data (eg domain.com)

Figure 1.1 Possible Background Trends in MP activity

Some exogenous factors which may influence commercial and non commercial activities in SIMP include the following.

Social

In migration of retirees and others to coastal towns
Aging of resident population and new arrivals
Obesity and health
Longer working life
Dual-income families
Aboriginal communities
Changing holiday patterns (e.g. short breaks, road trips)
Community awareness of environmental impacts/climate change

Technological

Better road access but increasing petrol prices
Trend to 4-wds
Internet, electronic communication/mobiles
Teleworking

Economic

Health care costs for aging populations
Housing affordability
longer working life/quasi-retirement
Dual household incomes – part-time work
Increasing petrol prices
coastal residential development
decline in regional economic importance of primary industry
increase in service sector
rising interest rates for housing loans
cost of housing /rents in Sydney (Newcastle, Canberra)

Environmental

climate change re drought, coastal processes etc.
decline of fisheries/ fish stocks
water quality and quantity for coastal lakes/estuaries, urban water supplies

Political/institutional trends

workplace /industrial agreements
creation of NSW multi-purpose MPAs
creation of Commonwealth marine parks
other environmental protection legislation
structural adjustment programs for NSW and Commonwealth fisheries.

Continued economic growth in the region is likely to affect the MP in at least two ways: by increasing pressure on the environmental resources and hence management of the Park; and also by increasing the value derived from the Marine Park.

Source: MPA Project Brief

2. Commercial Fishing

2.1 Description of SIMP Commercial Fishing

Commercial fishing data for areas 'in or adjacent to the SIMP' was provided by I&I for the period 1997-98 to 2008-09 and is summarised in Table 2.1 below.

Table 2.1 Commercial Wild Harvest 'In or Adjacent to the SIMP' #

Year	Weight (tonnes)	Value (\$'000)	Number of Fishing Businesses
1997-98	3,753	17,180	306
1998-99	3,719	19,970	306
1999-00	2,928	22,030	303
2000-01	4,007	29,999	307
2001-02	3,365	26,628	290
2002-03	3,569	26,420	282
2003-04	3,534	21,201	242
2004-05	3,090	18,546	240
2005-06	2,865	16,186	218
2006-07	2,642	16,692	206
2007-08	3,082	20,619	210
2008-09	1,934	14,833	179

Source: I&I Fisheries Resource Management Branch, August 2010

Includes estuary general, ocean hauling, ocean prawn trawl and ocean trap and line

'In or adjacent to the SIMP' is defined by I&I to include all of Ocean Zone 2 and 3 plus all relevant estuaries (see Figure 2.2 below). I&I Ocean Zones include fish caught in-shore, off-shore and in deep water ie Ocean Zone data includes Commonwealth fisheries catch such as the catch from the tuna fleet that operates out of Coffs Harbour and is not relevant to an analysis of the SIMP. Value estimates are average monthly prices at Sydney Fish Markets and include commission, transport, ice and box costs. Number of fishing businesses 'in or adjacent to the SIMP' includes full-time SIMP based fishing businesses, those who simply operate nearby, part-time operators and 'inactive businesses', ie those with entitlements to fish commercially in the broader region, but not currently active. Therefore, Table 2.1 provides only general 'big picture' time series data relevant to analysis of SIMP zoning plan changes. Data on the percentage of catch sourced from within the SIMP is not available and is not be estimated with accuracy given the scale at which fishing data is collected - no information is available on a finer scale (I&I Fisheries Resource Management Branch advice, August 2010).

Prior to 'buy-out' in 2000, some 140 commercial fishers accessed and drew a significant proportion of their catch from the SIMP (ie a subset of those shown in Table 2.1 above). Thirty of these fishing businesses were bought out and exited the industry in 2002.

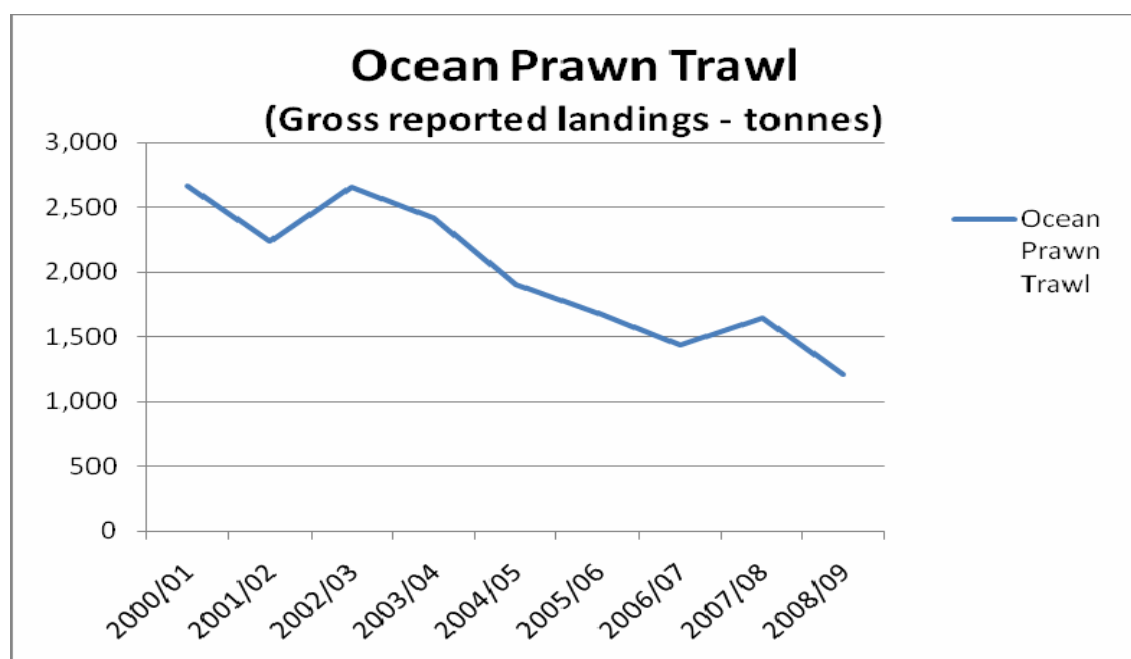
In 2004 surveys of commercial fishers completed by AgEconPlus revealed 26 commercial fishers operating, at least in part, in the SIMP (AgEconPlus 2004).

Commercial fisheries relevant to the Coffs Harbour, Woolli and Yamba areas include Estuary general fishery; Lobster fishery; Ocean hauling fishery; Ocean prawn trawl fishery; and Ocean trap and line fishery (MPA 2009).

Prawn trawl, lobster and trap and line are the most likely to be impacted by changes in the zoning plan (AgEconPlus consultation with NSW MPA and I&I).

Advice from NSW MPA and I&I is that there has been a major decrease in prawn trawl fishing days in the SIMP since the early 2000s. Figure 2.1 marks the extent of changes in the SIMP by also including off-shore and deep-water prawn trawl effort.

Figure 2.1 Ocean Prawn Trawl ‘In or Adjacent to SIMP’



Source: I&I Fisheries Resource Management Branch, August 2010

Includes in shore prawn trawl (some of which is relevant to the SIMP), off shore prawn trawl and deep water prawn trawl (not relevant to the SIMP)

In contrast, lobster, fish trap and hand line activity has either increased or at least remained stable. Lobster fishers target Eastern Rock Lobster, setting pots within SIMP ocean waters and operating small businesses. Fish trap and hand line fishers also tend to be smaller operators with fewer overheads and lower running (diesel) costs. Hand lining for kingfish around South Solitary Island remains a major source of income for commercial fishers and some travel further out to set fish traps (AgEconPlus 2009).

The major species targeted by commercial trap and hand line fishers surveyed in 2009 was kingfish. Others include snapper, teraglin, samsonfish and blue eyed cod. (AgEconPlus 2009).

In 2010 there are approximately ten prawn trawlers, five lobster fishers and twenty fish, trap and hand line fishers working at least some of the time in SIMP waters

(<http://www.abc.net.au/rural/nsw/content/2010/04/s2877970.htm>, confirmed I&I staff July 2010).

While there has been an overall decline in commercial fishing, some fishers have increased their harvest in recent times in response to fluctuating prices and adjustments to the fisheries (MPA 2009).

I&I are currently in the process of 'buying out' latent NSW fishing effort and providing exit grants to fishers (I&I pers comm. July 2010). However, this is unlikely to have a significant impact of the level of latent effort across the State or that that can be applied within the park.

It is proposed to have a commercial fishing buy out where there is a significant impact on commercial fishing as a result of changes in the final zone plan. The Solitary Islands and Jervis Bay marine parks buy-out program will operate via a voluntary market based tender process for shares, or in the case of the Southern Fish Trawl Restricted Fishery, endorsements.

The previous approach involved the voluntary buy-out of entire fishing businesses, including fishing entitlements not directly affected by the zoning plans. Recent progress with fishery reforms has included implementation of share management plans for the State's key commercial fisheries, and associated share transfer rules which enable trading in individual shares (entitlements), rather than entire fishing businesses. There may however be a preference for whole fishing businesses that are offered as this remains the major control of effort in NSW commercial fisheries at this time.

The Coffs Harbour Fishing Co-op is the major market outlet for SIMP caught fish. SIMP caught fish are also marketed through the Co-op at Iluka and Yamba. The co-op at Wooli no longer operates as a fish receival business.

2.2 Zoning Plan Changes that Impact Commercial Fishing

Draft zoning plan changes that are likely to impact on commercial fishing in the SIMP include:

- Total prohibition on prawn trawling within 2 years;
- Improved protection for key habitats, increasing the area of Sanctuary Zone in the park from 12% to 20%; and
- Restrictions associated with protection of the Grey Nurse Shark and threatened algae found near Muttonbird Island.

2.3 Assessment of Zoning Plan Impacts on Commercial Fishing

Assessment of draft zoning plan impacts on commercial fishing is completed in two parts – prawn trawl and lobster, trap and hand line.

Prawn Trawl

Prawn trawl faces high and increasing production costs (dominated by the high cost of diesel fuel) and low product prices. Australian wild-catch prawns face steep price competition from low-cost farmed imports from Asia. Efforts to export wild-caught king prawns have been hampered by a high Australian dollar. Seasonal conditions, including drought, have also impacted on the prawn trawl catch.

The activities of prawn trawlers in the region occupied by the SIMP are also influenced by the adjacent Commonwealth Marine Reserve (see Figure 2.2). This area is managed by the Department of Environment, Water, Heritage and the Arts (DEWHA) and the relevant management plan, which expired in 2008, stated that trawling and purse seining would be phased out. This plan has been reviewed and it is possible that future management arrangements would be implemented in connection with the development of a bioregional plan for the East Marine Region (extending from Cape York south to Tathra on the NSW coast). The establishment of a new or expanded Commonwealth marine reserve could place additional restrictions on prawn trawl access within some Commonwealth waters. The 'Clarence Area for Further Assessment' is adjacent to the SIMP. This DEWHA initiative is occurring alongside the NSW zoning plan review.

The prohibition of prawn trawling within the SIMP by late 2012 would not stop the supply of prawns from the Coffs Harbour and Yamba areas. There are two prawn trawl 'shots' within the MP which are used on an irregular and seasonal basis by the local trawl industry with something like fifty 'shots' at its disposal (ie 4% of total). Trawl effort currently using 'shots' within the SIMP may relocate to adjacent, already fished areas (I&I pers comm. July 2010). Under this scenario local fishing co-ops would continue to be supplied with a volume of locally caught prawns. The scenario is at least partially dependent on the future management of the *Solitary Islands Marine Reserve (Commonwealth Waters)* review outcomes and the East Marine Bioregional Planning Process both of which are unknown in October 2010.

Lobster, Trap and Hand Line

Lobster pot setting and trap and hand line fishing requires less fuel than prawn trawl and has been a viable alternative for fishers scaling back their commercial activities. Lobster fishers target high value eastern rock lobsters (under a quota system linked to the number of shares a fisher holds) and trap and hand line operations target popular finfish species such as kingfish and snapper.

Changes to the SIMP zoning plan would negatively impact lobster fishers and the commercial trap and hand line catch. Changes impacting lobster fishers include the increase in SIMP Sanctuary Zone area and boundary alignment that would exclude fishers from favoured lobster pot sites. Changes impacting trap and hand line include the planned increase in the Sanctuary Zone areas. Most impacts would be felt in the north of the SIMP as this is where most changes are planned. Protection of threatened algae found near Muttonbird Island would not affect commercial lobster, trap and hand line fishing.

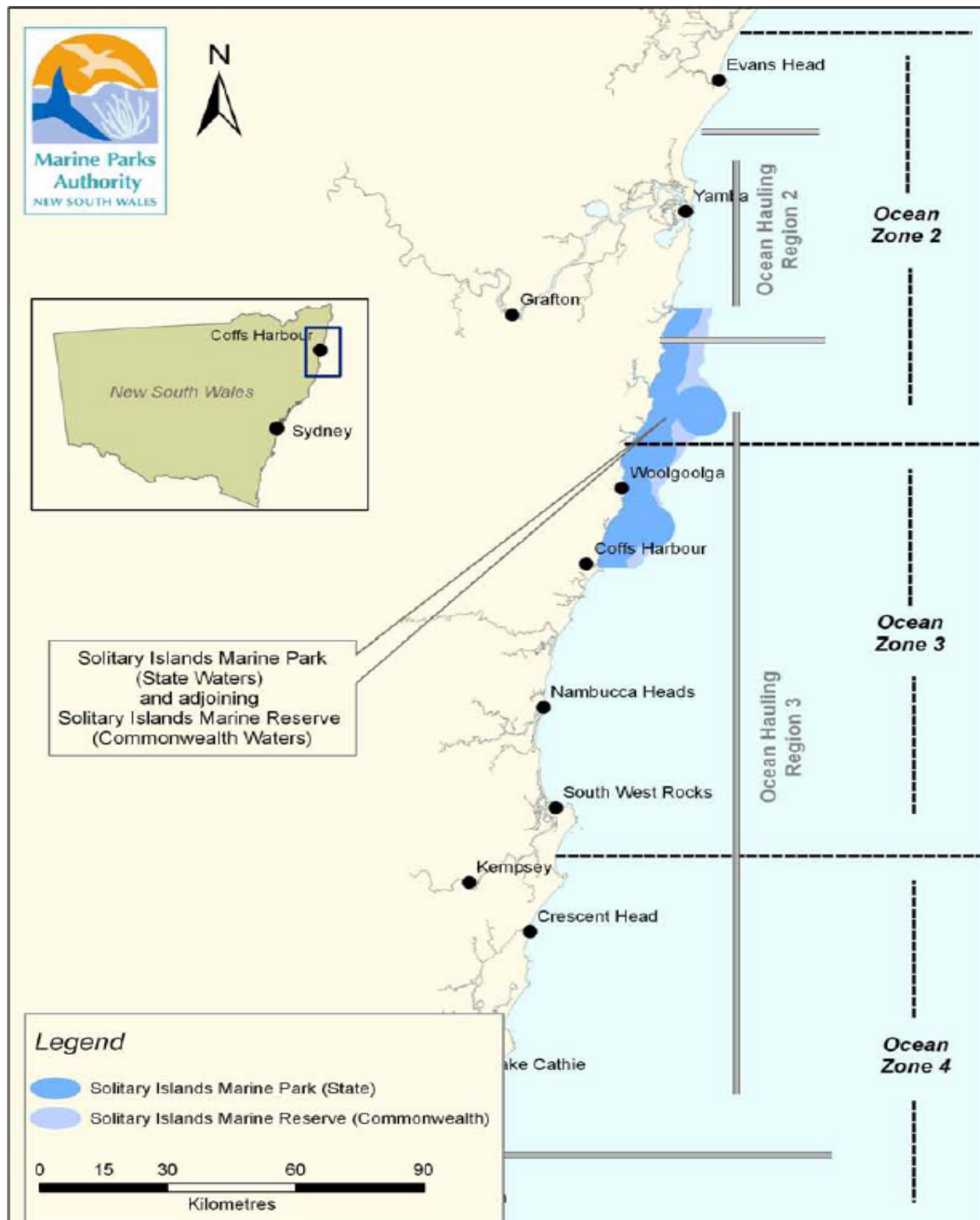
While changes to the zoning plan would negatively impact lobster, trap and line fishing grounds, the overall loss in fishing area for suppliers to fish markets and local co-ops is relatively small. Loss of fishing grounds is likely to be less than five percent of total I&I

Ocean Zone 2 (Woolgoolga to Evans Head) and Ocean Zone 3 (Kempsey to Woolgoolga) catch (Figure 2.2). Any loss in catch from restricted fishing grounds would depend on:

- The potential of fishers to move to another area rather than suffer the full area loss; and
- The potential for the increase in habitat protected to supplement the supply of commercially viable lobster and finfish over the longer term.

Quantification of impact is estimated in the section below.

Figure 2.2 I&I Fishing Zones, SIMP and Commonwealth Marine Reserve



Source: MPA 2009

Quantification of Impact

Commercial fishing in SIMP estuaries (Sandon River, Wooli Wooli River, Corindi River, Moonee Creek and several smaller coastal lakes) is limited to five commercial crab trappers and is not affected by changes in the zoning plan. Catch within affected fisheries is shown in Table 2.2.

Table 2.2 Value of Commercial Wild Harvest 'In or Adjacent to the SIMP' (\$'000)

Fishery	2007	2008	2009	3-year average (a)
Ocean Prawn Trawl	\$10,928	\$13,715	\$10,178	\$11,607
Ocean Trap and Line	\$3,438	\$4,015	\$2,972	\$3,475
Lobster	\$193	\$255	\$194	\$225

(a) Value of Lobster fishery averaged over 2 years only

NB: fisheries excluded from above values are Estuary General, Fish Trawl and Ocean Haul

The proposed changes to the draft zoning plan are expected to have different impacts on relevant fisheries that operate in or adjacent to the SIMP. Ocean Prawn Trawlers are expected to lose 2 shots in 50 (4%), potentially reducing catch by a similar amount. Ocean Trap and Line fishers are expected to lose 3.52% of the total fishable area of Ocean Zones 2 & 3 from the increase in Sanctuary Zone from 12% to 20%.^[1] I&I have estimated the impact on Lobster fishers within the SIMP at 10% (I&I pers comm). Producer surplus associated with gross fishing values is around 7% (ABS 2006). The economic impact on SIMP commercial fishers is summarised in the table below.

Table 2.3 Estimated impact on Commercial Fishing Values (\$'000)

Fishery	Impact (reduction)	Gross value	Loss (Gross value)	Loss (producer surplus)
Ocean Prawn Trawl	4%	\$11,607	\$464	\$32
Ocean Trap and Line	3.52%	\$3,475	\$122	\$9
Lobster	10%	\$225	\$23	\$2
		\$15,306	\$609	\$43

NB: There is unlikely to be any impact on the Ocean Haul fishery 'in or adjacent to the SIMP'

The estimated loss in producer surplus to commercial fishers resulting from draft SIMP zoning plan changes is \$43,000 per annum. However, these economic impacts may be offset to some extent by commercial fishery buyouts. Other marine planning processes, including those being undertaken by the Commonwealth, will also impact on fisher producer surplus. It is possible that much of the fishing effort that would be displaced by the proposed changes (e.g. prawn trawling) may simply relocate to adjacent, already fished areas. A two year phase in will also assist with structural adjustment processes. In addition, fish and prawn stocks in these areas may still be harvested outside the marine park in areas which could potentially benefit from spillovers from the SIMP.

^[1] The SIMP represents about 44% of the area of Ocean Zones 2 & 3 within state waters. An increase in the area of Sanctuary Zone from 12% to 20% would result in a 3.52% loss in fishable area and assumed catch rate.

3. Aquaculture

Aquaculture within the SIMP involves oyster cultivation and spat collection in the Woolli Woolli and Sandon Rivers. There are currently four licensed oyster farmers in the marine park (MPA 2009).

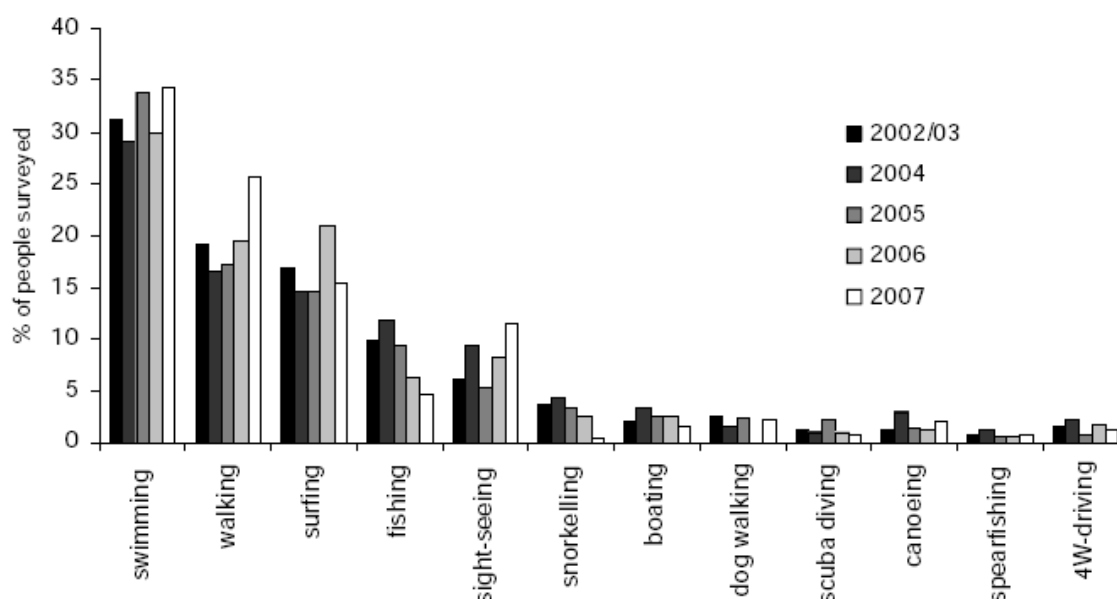
The draft zoning plan is not expected to impact oyster production (AgEconPlus consultation and analysis).

4. Recreational Fishing

4.1 Description of SIMP Recreational Fishing

Recreational fishing is a popular activity in the SIMP (see Figure 4.1 below). A national survey of recreational fishing found NSW had the highest recreational fishing rates, with an estimated 999,000 recreational fishers. The survey estimated that approximately \$8.5 million is expended by recreational fishers in the Coffs Harbour and Clarence regions, which equates to approximately 1% of NSW expenditure on accommodation and gear (MPA 2009).

Figure 4.1 The relative frequency of recreational activities undertaken in the park reported by visitors surveyed 2002–2007.



Source: Ryan 2007

Recreational fishing within the SIMP includes trolling and spinning for pelagic species, spearfishing on reefs to a depth of up to 30m and hand collecting for bait or for food including lobster, abalone, pipis, crabs, beachworms, yabbies, sea cabbage and ribbon weed (MPA 2009).

Recreational fishing includes independent trips by individuals, families and groups of residents and visitors, charter hire (see section below) and managed recreational fishing competitions. Competitions include both line and spearfishing events (eg Coffs Harbour Deep Sea Fishing Club – Dave Irvine snapper classic and the international Freediving Classic run by the Coffs Harbour Bluewater Freedivers club).

Recreational fishing within the SIMP takes place in estuaries, beaches, rocky headlands and wharves and is also concentrated around the park's islands – North Solitary Island, North West Solitary Island, South West Solitary (Groper) Island, South Solitary Island and Split Solitary Island (MPA 2009).

Recreational fishing around the SIMP's islands would be impacted by changes in the zoning plan (AgEconPlus consultation and analysis). It is noted that boat based recreational fishing is only a subset of total regional recreational fishing effort.

4.2 Zoning Plan Changes that Impact Recreational Fishing

Draft zoning plan changes that would impact on recreational fishing in the SIMP include:

- Improved access seasonal spear/line fish opportunities near Groper Island – Bare Bluff, and Minnie Water Back beach;
- Zoning boundaries and recreational fish species simplification - resulting in improved outcomes for recreational fishers;
- Improved protection for key habitats, an increase in the SIMP Sanctuary Zone from 12% to 20%; and
- Restrictions associated with protection of the critically endangered grey nurse shark.

4.3 Assessment of Zoning Plan Impacts on Recreational Fishing

Advice from I&I is that analysis of NSW recreational fishing licence data would not shed light on the impact of SIMP zoning plan changes on recreational fishing – too many licences used in and around Coffs Harbour, Wooli and Yamba are sold over the internet, sold outside the region or are subject to pensioner / child exemption. Nor is it possible to determine whether the number of licence holders declined in the period following implementation of the current zoning plan.

Draft changes to the zoning plan would have both positive and negative impacts on recreational fishers. Improving access for recreational fishers by changing a small area of the Groper Island sanctuary zone to allow seasonal spearfishing and line fishing could have a positive impact, as could reducing the complexity of the zoning plan by straightening boundaries and simplifying recreational fishing restrictions around particular species.

On the negative side, improving protection for key habitats, increasing the area of sanctuary zone in the park from 12% to 20% and improving protection for the threatened

Grey Nurse Shark will reduce the area available for recreational fishing. For example, a single rocky headland near Diggers Camp in the north of the SIMP would be closed to recreational fishing. Protection of threatened algae found near Muttonbird Island would not affect recreational fishing (MPA pers comm. July 2010).

Most families who visit the SIMP for a beach or estuary holiday fishing trip would not be expected to notice any change in recreational fishing opportunity (MPA pers comm. July 2010). However, changes in the north of the SIMP will reduce the areas available for recreational fishing, particularly around Woolli. While the areas available for shore-based fishing would be affected to a lesser degree, there would be greater restrictions in offshore fishing areas. The Woolli Chamber of Commerce have expressed concerns that their community would be severely impacted by the resultant reduction in recreational fishing effort (Woolli Chamber of Commerce pers comm. August 2010).

Quantification of Impact

Data on the value of SIMP recreational fishing is not available from published sources. Information obtained from other published and unpublished sources shows that:

- In 2007 there were 1.3 million domestic and international visitor nights spent in the Coffs and Clarence LGAs (TRA 2007) and approximately 9% of visitors to the region fish (Ryan 2007);
- In addition, the proportion of the Mid North Coast population who fish was estimated at 29.9% (NSW Recreational Fishing Survey) and the population of the region is 123,731 (ABS 2009);
- Based on these sources, the total number of fishing trips in the SIMP region is likely to be in the order of 155,000 p.a. (i.e. 9% of 1.3 million visitors plus 29.9% of Coffs Harbour and Clarence residents);
- Furthermore, consumer surplus per fishing trip was estimated at \$35 per trip (Gillespie *et al* 2005). Total consumer surplus for the Coffs Harbour and Clarence region (ignoring producer surplus associated with charter fishing hires) is likely to be in the order of \$5.4 million pa, with only a proportion of this associated with the SIMP.
- This information suggests that recreational fishing is an important economic activity in and adjacent to the SIMP.

Draft changes to the zoning plan would have both positive and negative impacts for recreational fishers. Offshore fishing opportunities would be affected at some locations by proposed new sanctuary zones and Grey Nurse Shark provisions. However, access to many key fishing locations, including estuaries would not be affected. Given the continued availability of alternative fishing areas in the SIMP, it is difficult to quantify the change in recreational fishing values resulting from the proposed zoning plan.

On balance recreational fishing values are unlikely to change significantly.

5. Commercial Marine Tourism Activity

5.1 Description of SIMP Commercial Marine Tourism Activity

A number of commercial activities are undertaken in the SIMP including charter fishing, charter scuba diving, marine mammal watching and scenic cruises, watercraft hire, kayak tours and surf schools. Estimates from surveys conducted in 2000, 2004 and 2008 found that the number of people participating in SIMP commercial marine activities had increased slightly from 31,700 p.a. to 34,000 p.a. (MPA 2009).

In 2008, AgEconPlus estimated 34,000 people participated in commercial tours operated by 35 commercial tour businesses in the SIMP with an estimated gross value of \$2.3 million – see Table 5.1 below. Producer surplus on commercial marine tourism activity was estimated at \$509,000 pa.¹

Table 5.1 Profile of SIMP Commercial Marine Tourism Activity

Activity	Number of Permits	Estimated Passengers	Cost per Passenger	Total Revenue for Sector	Producer Surplus (\$)
Charter fishing	9	5,800	\$100	\$580,000	\$128,000
Dive	8	7,100	\$100	\$710,000	156,000
Mammal/Scenic	4	3,000	\$44	\$132,000	29,000
Other	14	17,790	\$50	\$890,000	196,000
Total	35	33,690		\$2,312,000	\$509,000

The impact of draft zoning plan changes by commercial marine tourism activity is presented in the following sections.

5.2 Assessment of Zoning Plan Impacts on Charter Fishing

NSW MPA permitted charter boat operators provide fishing trips to recreational anglers in the SIMP. Charter boat operators are based in both the south (e.g. Coffs Harbour) and north of the SIMP (e.g. Woolli). Proposed changes to the zoning plan affect both the south of the park, including access to South Solitary Island to protect the critically endangered Grey Nurse Shark, and more particularly the north of the park, where additional sanctuary zone area and Grey Nurse Shark protection measures would disrupt current charter fishing activity (MPA and Woolli Chamber of Commerce pers comm. July and August 2010).

While changes to the SIMP zoning plan would reduce areas available to charter boat operators, it is believed that these businesses are reasonably flexible in how and where they fish. For example, reduced access to South Solitary Island is likely to be offset with changes in fishing technique and increased fishing effort in other areas. Charter boat operators prefer to fish in deep water for species such as Snapper, and this activity is expected to be largely unaffected by zoning plan changes and would readily substitute for reduced South Solitary Island and northern sanctuary zone access. Economic values associated with charter fishing are unlikely to be impacted by changes to the zoning plan.

5.3 Assessment of Zoning Plan Impacts on Scuba Diving/Snorkelling

¹ Using a producer surplus estimate from Gillespie *et al* (2005) of 22% of gross revenue.

The SIMP is recognised as a premier scuba diving location in NSW because of its spectacular dive sites, range of offshore islands, opportunities for divers to experience a mix of tropical and temperate marine life, and experiences such as diving with Manta Rays (MPA 2009).

While there is some concern among local fishers about the activities of scuba divers in the park (see for instance www.savesol.com), scuba diving and snorkelling is managed under a strict code of conduct and available evidence is that they cause very little, if any, environmental damage (I&I pers comm. July 2010).

Changes to the SIMP zoning plan would not impact scuba diving and snorkelling activities. Changes to Woolli Dive business operations are reviewed in Chapter 7.

5.4 Assessment of Zoning Plan Impacts on Marine Mammal Watching

Whale watching is conducted in the Winter and Spring during the annual Humpback Whale migration. Dolphins are observed year-round. Recreational observation of whales and dolphins generally takes place in association with other activities such as recreational boating, fishing or scuba diving trips. In 2002, up to five vessels undertook commercial whale watching as a major part of their business. In 2009 there were two operators who conducted most of their tours in the southern section of the SIMP (MPA 2009).

Changes to the SIMP zoning plan are not expected to affect marine mammal watching.

5.5 Assessment of Zoning Plan Impacts on Other Commercial Recreation

Other commercially supplied recreational activities based in the SIMP include watercraft hire (Jet skis), kayak tours and surf schools.

Changes to the SIMP zoning plan are not expected to affect other commercially supplied recreation activities.

6. Other Recreation

Passive recreation such as swimming, walking, surfing and sightseeing make up the bulk of recreational activities in the SIMP (Figure 4.1 above). Changes to the zoning plan are not expected to affect these activities.

7. Local Business Activity Dependent on SIMP

Local business activity dependent on the SIMP is based on businesses providing goods and services such as accommodation and meals to park visitors, businesses servicing the commercial and recreational fishing sectors (e.g. bait and tackle, chandlery, boat maintenance etc.), businesses supplying and receive fish from the commercial fishing sector, and businesses that benefit from Marine Park management expenditure. In addition to the local businesses that benefit directly from the SIMP, flow-on effects, including income and employment, provide benefits for other businesses and households

in the regional economy. A separate study to assess the regional economic impacts of the SIMP has been commissioned by the MPA (CARE forthcoming).

Tourism Research Australia indicates that there are 1,731 local businesses linked to tourism in the Coffs and Clarence LGAs which broadly make up the SIMP region and a cross section of these were surveyed by Arche Consulting in 2010. Arche Consulting concluded that responses about the impact of the Marine Park on both individual businesses and businesses in the town were fairly balanced across the positive and negative spectrums. Of respondents, 53% indicated a level of positive impact on their business, and 63% indicated that they perceived a positive impact on businesses in their town (Arche Consulting 2010).

Commercial fishing businesses in the SIMP purchases a range of inputs including fuel, bait, ice, labour and services and sells a range of fish products. Co-ops are significant businesses (measured in terms of both employment and turnover) within the region that includes the SIMP.

The MPA employs eight full-time officers in the Coffs MPA region and purchases goods and services locally through a mix of contracted suppliers and the purchase of day to day goods from a range of local providers. These goods and services include mooring maintenance, chandlery, fuel and diving suppliers (Arche Consulting 2010).

MPA (2009) notes that a survey of small business adjacent to the SIMP in 2006 found no evidence of negative impacts on small businesses following the introduction of the zoning plan in 2002. On the contrary, business reported an increase in the number of peak season part-time staff and their estimated annual turnover increasing by about 20%. Most of this growth came from increased visitation. Although this cannot be attributed to the marine park, it suggests that business turnover did not decrease in response to the zoning plan.

The economic impact of the draft zoning plan is reviewed below for both smaller northern SIMP communities and the regional centres of Coffs Harbour and Woolgoolga.

Smaller Northern SIMP communities

During consultations carried out as part of the preparation of this report the MPA and I&I have commented that smaller communities including Sandon, Minnie Water, Wooli, Diggers Camp and Red Rock along with the larger centres of Yamba and Iluka were presenting strong concerns about the perceived impact of zoning plan changes. Community members in the smaller communities felt that recreational fishing was the lifeblood of their towns and villages and that zoning plan changes threatened local livelihoods. Agency representatives noted that similar concerns were expressed in 2002 when the original SIMP zoning plan was implemented but a reduction in visitors undertaking recreational fishing did not occur. Nevertheless, given strong concern expressed by community members in the north of the park, additional consultation has been undertaken. The results of consultation with the Wooli Chamber of Commerce are summarised in Figure 7.1.

Figure 7.1 Concerns Expressed by Woolli Chamber of Commerce in relation to proposed changes in SIMP Draft Zoning Plan

Desk based research completed for this study was augmented with targeted stakeholder consultation. Key comments received from members of the Woolli Chamber of Commerce were as follows:

- Woolli is dependent on tourism. A very high percentage of tourists are attracted to the town to fish. The town has little else to attract visitors other than fishing. If recreational fishing is impacted by zoning plan changes, Woolli will be impacted.
- For example one local business offers charter fishing, whale watching, diving and accommodation. It was stated that without fishing to attract visitors in the first place all four enterprises would fail. Fishing draws in visitors that might take a dive trip or a whale watch with the family while they are holidaying at Woolli.
- The Chamber of Commerce has completed a survey of local businesses who have indicated that jobs will be shed from the resort, the lodges, the hotel/motel, bowling club, Chinese restaurant, butcher shop, petrol station, dive shop, river boat hire/charter, real estate agent and most importantly the small public school as a result of planned and perceived changes to the marine park.
- It was suggested that a total of 27 full time positions would be lost in a town of between 350 and 380 residents and business turnover and business capital value would be adversely affected.
- Chamber of Commerce representatives stated that visitors are intimidated by zoning boundaries and changes to them. They like to fish by drifting in their boats and are concerned that they will drift into no fish zones.

The analysis of the economic impact of zoning plan changes on recreational fishing in the SIMP reveals that on balance, the overall impact of changes is expected to be neutral. Nevertheless there is a spatial dimension to zoning change impacts with greater restrictions on use in the north than the south of the park. Potentially there may be some loss in economic activity, at least in the short term, in small towns in the north of the park.

Following zoning plan implementation, impacts should be monitored and joint MPA / community efforts to promote recreational fishing in the north of the park considered (eg reference to fishing opportunities through the MPA or national parks websites). These measures need not be expensive to implement.

Coffs Harbour and Woolgoolga

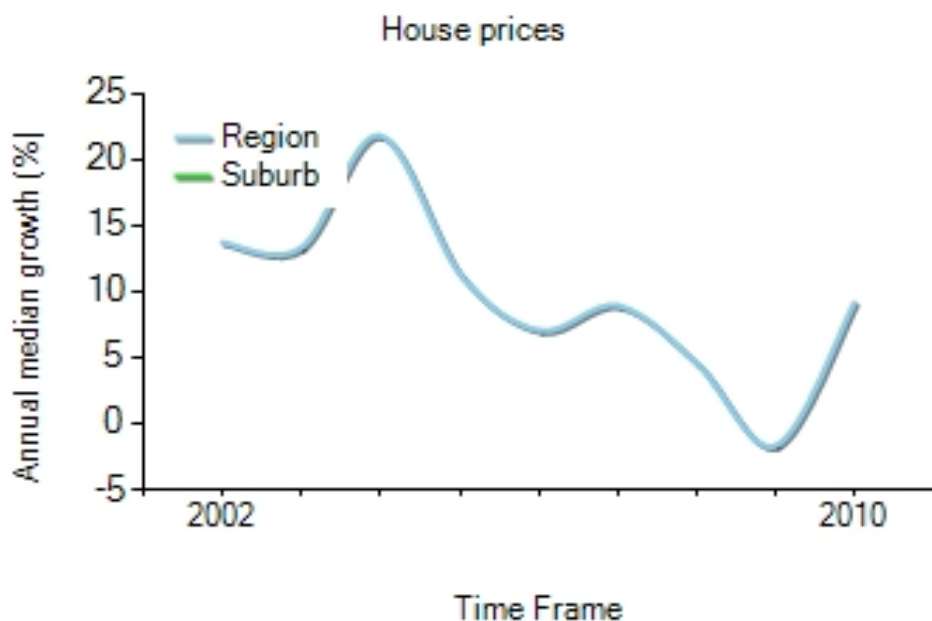
Economic impacts associated with SIMP zoning plan changes are expected to be minor. The largest estimated change in economic activity as a result of SIMP zoning plan changes is a 5% reduction in commercial fisher producer surplus (approximately equivalent to the estimated profit on the gross value of SIMP catch estimated over three years at \$16.6 million). This change would impact suppliers of commercial fishing inputs, the largest of which are fuel suppliers who are not dependent on a single industry, and marketers and transporters of commercially caught fish. Fishing co-ops and transporters would incur an income loss. However, on its own the loss to co-ops and transporters would not be sufficient to render these businesses non viable. Ongoing growth in larger southern SIMP towns, including growth in tourism related businesses would be expected to provide a range of new opportunities for local businesses.

8. Property Prices

Overall, the relatively minor changes in economic values described in this report are unlikely to impact property prices. In the short term there may be some reluctance to purchase in small communities in the north of the park as a consequence of draft zoning plan changes if falling business prospects affect local sales. Other factors will also affect the decision to purchase in the vicinity. For example it is noted that Wooli is a coastal erosion 'hotspot' and concern about storm damage may influence property sale outcomes (<http://www.dailyexaminer.com.au/story/2010/08/10/sea-threatens-wooli-homes-grafton/>). Other factors both positive and negative are listed in Figure 1.1.

Analysis of the Wooli housing market reveals substantial buoyancy driven by an influx of both Gold Coast investors and retirees (Wooli Chamber of Commerce advice). House price guide Domain.com provides an Australian Property Monitor forecast for a long term growth trend for Wooli of 16.5% with a median house price of \$420,000 compared to a regional growth rate of 8.6% and a median house price of \$300,000. Historical analysis of housing and unit price growth rates in the region is provided in Figure 7.2.

Figure 7.2 Median Property Trends for Houses Coffs Harbour and Wooli Region



<http://www.domain.com.au/public/SuburbProfile.aspx?searchTerm=Wooli&mode=research>

NB: Wooli house prices not shown in the graph

9. Summary and Conclusions

From the above analysis the following results are summarised.

Table 9.1 Economic Impacts of Draft SIMP Zoning Plan Changes

Activity	Net Incremental Impacts of ZP Changes
Commercial fishing	<ul style="list-style-type: none"> ○ A loss in producer surplus of \$43,000 per annum is estimated.
Recreational fishing	<ul style="list-style-type: none"> ○ Fishers more likely to change location than stop fishing ○ ZP includes both positive and negative developments for recreational fishing ○ On balance, no net change in economic values.
Charter fishing	<ul style="list-style-type: none"> ○ Restricted access to South Solitary Island and new sanctuary zones in the north likely to be offset by increased deep water fishing effort
Aquaculture	<ul style="list-style-type: none"> ○ No change in economic values
Scuba diving and snorkelling	<ul style="list-style-type: none"> ○ No change in economic values
Marine mammal watching	<ul style="list-style-type: none"> ○ No change in economic values
Other commercial recreation (eg kayak tours)	<ul style="list-style-type: none"> ○ No change in economic values
Other recreation	<ul style="list-style-type: none"> ○ No change in economic values
Local businesses	<ul style="list-style-type: none"> ○ Some loss in income for fuel suppliers, fish co-ops and transporters. ○ Small communities in the north of the park may be vulnerable in the short term to changes affecting recreational fishing.
Property prices	<ul style="list-style-type: none"> ○ Regionally property prices are not expected to be impacted by the minor changes in economic values described in this report.

Economic impacts associated with the draft zoning plan for SIMP are focused on the loss of producer surplus for commercial fishers, minor loss of income for linked businesses such as fish co-ops, transporters and fuel suppliers and localised impacts in the north of the marine park associated with new restrictions on recreational fishing.

10. References

- Australian Bureau of Statistics (2006) Australian National Accounts: Input-Output tables 2005/06
- AgEconPlus (2009) Survey of Commercial Activities in NSW Marine Parks 2009 (An Update of 2004 Base-Line Data)
- AgEconPlus (2008) Economic Impact of Solitary Islands Marine Park Zoning Plan, Draft Final Report 26 March 2008
- AgEconPlus (2004) Economic Values of Marine Parks, Baseline Data Collection (report in confidence).
- Alistair J. Hobday, Thomas A. Okey, Elvira S. Poloczanska, Thomas J. Kunz, Anthony J. Richardson (2006) Impacts of Climate Change on Australian Marine Life CSIRO Marine and Atmospheric Research. Report to the Australian Greenhouse Office, Department of the Environment and Heritage
<http://www.greenhouse.gov.au/impacts/publications/marinelife.html>.
- Arche Consulting (2010) Solitary Islands Marine Park Profile of Local Businesses
- Bureau of Rural Sciences (2007) Regional Profile East Marine Region: Description of commercial, recreational and charter fishing activities
<http://www.environment.gov.au/coasts/mbp/publications/east/pubs/fishing-activities.pdf>
- Dominion Consulting (2004) An Assessment of Economic and Social Issues in the NSW Ocean Trawl Fishery Management Strategy
<http://www.environment.gov.au/coasts/fisheries/nsw/ocean-trawl/pubs/nsw-ocean-trawl-volume4.pdf>
- Gillespie Economics, AgEconPlus and Eco Logical Australia (2005), *Economic Values of Natural Resources and Natural Environments on the NSW Coast*, prepared for the NSW Department of Environment and Conservation.
- NSW Marine Parks Authority (2009) Solitary Islands Marine Park: zoning plan review report
- Ryan (2007), Visitors to Solitary Islands Marine Park: their behaviours, attitudes, and perceptions. An analysis of surveys: 2002 to 2007, report to the NSW Marine Parks Authority.
- Save Fishing in the Solitary Islands Organisation <http://www.savesol.com/index.php>

Steffe, A, Murphy, J, Chapman, D, Barrett, G and Gray, C (2005), An assessment of changes in the daytime, boat-based, recreational fishing of the **Tuross Lake** estuary following the establishment of a 'Recreational Fishing Haven', NSW Department of Primary Industries - Fisheries Final Report Series No. 81.

Steffe, A, Murphy, J, Chapman, D, Barrett, G and Gray, C (2005a), An assessment of changes in the daytime, boat-based, recreational fishing of the **Lake Macquarie** following the establishment of a 'Recreational Fishing Haven', NSW Department of Primary Industries - Fisheries Final Report Series No. 79.

Tourism NSW (2010) Mid North Coast Regional Profile, <http://corporate.tourism.nsw.gov.au/> accessed 23 March 2010).

TRA (2007) Visitor Profile and Satisfaction Report.

Umwelt (Australia) (2004) NSW Ocean Trawl Fishery Management Strategy – Assessment of Indigenous Issues and Historic Heritage Issues
<http://www.environment.gov.au/coasts/fisheries/nsw/ocean-trawl/pubs/nsw-ocean-trawl-volume4.pdf>