

Submission
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INQUIRY INTO RECREATIONAL FISHING

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NSW GOVERNMENT SUBMISSION

TO

**LEGISLATIVE COUNCIL SELECT COMMITTEE INQUIRY INTO RECREATIONAL
FISHING**

MARCH 2010

Executive Summary

- The NSW Government acknowledges the important social and economic value of recreational fishing, amongst the wide range of uses of our marine and freshwater ecosystems.
- The Government is committed to ensuring recreational fishing is sustainable and that future generations can continue to enjoy fishing as much as we do today.
- The NSW State Plan 2010 includes a key priority to protect our native vegetation, biodiversity, land, rivers and coastal waterways and includes targets for maintaining or improving the condition of these ecosystems.
- Fisheries and protected areas management play key roles in ensuring the sustainability of our fisheries resources and aquatic biodiversity, and are supported by a range of complementary government programs, such as investment by catchment management authorities on improved natural resource management.
- Since 1998 the NSW Government has declared six large multiple-use marine parks - at Cape Byron, Solitary Islands (Coffs Harbour), Port Stephens-Great Lakes, Jervis Bay, between Batemans Bay and Narooma and surrounding Lord Howe Island.
- These parks cover about 345,000 hectares or more than one third of NSW waters and are part of an important national effort to protect marine biodiversity throughout Australia within a National Representative System of Marine Protected Areas.
- Recreational fishing can occur in every NSW marine park, with between 72.5 per cent and 88 per cent of marine parks accessible to recreational fishing. The Government has recently released a 'Guide to recreational fishing in NSW marine parks'.
- Just 6.7 per cent of NSW coastal waters are set aside as 'no take sanctuary zones' and less than 4 per cent of ocean beaches and rocky shores are within sanctuary zones.
- Over 80 per cent of the key recreational fishing sites identified by the community remain available for recreational fishing under current zoning plans according to analysis at Jervis Bay, Port Stephens-Great Lakes and Batemans marine parks.
- Along with protecting marine biodiversity, each park also provides for ongoing sustainable uses, including fishing, diving, whale and dolphin watching, boating and cultural activities.
- A telephone survey of 400 people in the Coffs Harbour region in 2008 indicated 87% of respondents were in favour of conserving the marine park and 80% of respondents supported sanctuary zones in the zoning plan.
- There is a large and growing body of Australian and international scientific research confirming the benefits of marine protected areas for conserving marine life. This includes a 2009 global study of 124 marine reserves in 29 countries, (including Australia) showing a 446 per cent mean increase in biomass across all reserves.
- For example, a study of a reef site at Port Stephens protected for the last 20 years has shown double the number of fish were found in the protected area compared to the nearby fished zone and early surveys of Jervis Bay Marine Park are showing a trend for greater numbers of fish and more large fish.
- At this time, the NSW Government has no plans to establish new marine parks in NSW, including in the waters of the Hawkesbury Shelf Bioregion (Newcastle to Shellharbour) and Twofold Shelf Bioregion (South of Bermagui) because we are focusing on managing existing parks.
- Recreational fishing generates significant economic benefits for NSW. A 2003 study estimated direct and indirect expenditure on recreational fishing to be around \$554 million in 2000/01.

- Since 2002, the NSW Government has allocated more than \$30 million in industry adjustment for the commercial fishing industry to support implementation of marine parks.
- This investment complemented the \$18 million spent on commercial fishing industry adjustment by the NSW Government in 2001 to establish 30 recreational fishing havens along the NSW coast.
- In 2008/09, the NSW Government's expenditure associated with the management of recreational fishing, compliance, fisheries conservation and research was around \$42 million. This included \$10.8 million in funding from the Recreational Fishing Trusts on programs to improve recreational fishing opportunities.
- Fish stocks that support recreational fishing are components of complex ecosystems. An ecosystem based fisheries management approach is used to achieve ecological sustainability in NSW to protect both fish stocks and the habitats upon which they rely.
- A comprehensive suite of fishing rules, including bag and size limits, fishing gear restrictions and protected and threatened species laws underpin sustainable recreational fishing in NSW.
- Education of fishers and the broader community is a key priority to encourage responsible fishing and promote awareness of fishing impacts on our ecosystems.
- The NSW Government is also delivering a comprehensive program to improve recreational fishing opportunities. This includes the annual stocking of around 2 million native fish and 3.5 million trout in freshwater, installation of fish attracting devices along the coast and artificial reefs and recreational fishing havens.
- The NSW Government allocates up to \$5 million annually towards improvements to wharfs and boat ramps across Sydney and in regional NSW under the Better Boating Program.

1 Introduction

Recreational fishing generates valuable social and economic benefits in NSW, particularly for regional communities. Expenditure on recreational fishing in NSW was estimated to be \$554 million in 2000/01 (Henry and Lyle 2003). Overall the recreational catch equates to around 30 per cent of the total commercial catch by weight. However, the estimated harvest of some popular species such as bream, mulloway, dusky and blue spotted flathead accounts for around 70 per cent of the total harvest of those species.

Recreational fishing is dependent on healthy aquatic ecosystems. There is a direct link between biodiversity, fish habitat, and fish stocks. The NSW State Plan 2010 maintains a key priority to protect our native vegetation, biodiversity, land, rivers and coastal waterways' and includes targets for maintaining or improving the condition of these ecosystems. Climate change, pollution, resource use (including fishing), land based impacts, introduced pests and diseases, barriers to fish passage and changes in riverine flows are recognised as the key threats contributing to declines in habitats, changes in ecosystems and loss of biodiversity.

Fisheries and protected areas management play an important role to help ensure the sustainability of our fisheries resources and aquatic biodiversity. In NSW, fisheries and marine protected area management programs are complemented and supported by broader natural resource and catchment management programs, climate change adaptation initiatives, landuse planning, Environmental Trust programs, pollution reduction and environmental water programs. These programs aim to protect ecosystems, however it is important to where possible rehabilitate degraded habitat.

In the same way that poor activities on land can impact on our freshwater and marine ecosystems, initiatives focused on improving land and aquatic based practices can benefit these same systems. For example, Catchment Management Authorities have invested \$590 million over the past three financial years to 2008/09 and plan investments of another \$105 million in 2009/10.

NSW marine protected areas are designated as multiple-use and support a range of sustainable activities including recreational and commercial fishing, and provide opportunities for public appreciation, understanding and enjoyment. NSW marine parks including sanctuary zones are strongly supported by the community, and judging from the statistics by many recreational fishers. For example, 86 percent of people surveyed for *Who Cares about the Environment 2009*, either agreed or agreed strongly that '*some areas of the marine environment should be protected, even if it means recreational and commercial fishing is excluded*'. Only 3 percent of those surveyed strongly disagreed. Other recent surveys at Jervis Bay, Solitary Islands and Lord Howe Island marine parks have also indicated similarly high levels of support from locals and visitors.

Specific comments in relation to each of the Inquiry's terms of reference are set out below.

2 Terms of Reference 1(a) – The current suite of existing regulatory, policy, and decision making processes in relation to the management of recreational fisheries in NSW, including the process for the creation of Marine Protected Areas and Marine Parks and the efficacy of existing Marine Protected Areas and Marine Parks.

2.1 Fisheries Management

The *Fisheries Management Act 1994* identifies a number of objectives to conserve, develop and share the fishery resource of the State for the benefit of present and future generations, including promoting quality recreational fishing opportunities. The Department of Industry and Investment NSW (I&I NSW) has the responsibility for administering the *Fisheries Management Act* under the portfolio of the Minister for Primary Industries. Advisory and consultative processes are used extensively in decision making processes relevant to the management of our fisheries resources, including the management of recreational fishing.

Fish stocks that support recreational fishing are components of complex ecosystems. An ecosystem based fisheries management approach is used in NSW, which incorporates all aspects and impacts of fishing activities on the ecosystem into decision making.

Management of the fisheries resources of NSW requires balancing the often competing priorities of conservation, quality recreational fishing opportunities, viable commercial fishing and aquaculture, and appropriately sharing the fisheries resources among user groups.

Recreational fishing rules such as bag and size limits, gear restrictions and fishing closures are the main management tools used to restrict the amount of fish that recreational fishers can take. Additional controls also apply to protect threatened or endangered species. Non-fishing activities that have the potential to damage or remove aquatic habitats are also subject to restrictions.

2.1.1 Bag and possession limits

NSW currently has a system of daily personal bag limits and possession limits for saltwater and freshwater fish, with over 50 species (or combination of species) covered by bag limits of 0, 2, 5, 10, or 20 per day. The setting of bag limits takes into account available science and considers traditional recreational fishing activity. Generally, species that have higher bag limits are those which are more abundant and have fewer issues to do with sharing. All species are now subject to a general bag limit to prevent unlimited harvesting by recreational fishers.

2.1.2 Size limits

Size limits are the minimum and/or maximum length at which a fish that may be legally kept. Currently over 40 species have a size limit, including freshwater and saltwater species. Size limits are set based on biological information (where available) although other factors such as survival of released fish, interactions with fishing gear and marketability are also important.

2.1.3 Recreational fishing equipment and methods

The *Fisheries Management (General) Regulation 2002* defines a range of recreational fishing equipment and harvesting methods that anglers are permitted to use. Most of the equipment permitted to use is traditional gear types, including rod and line or handline, small traps for lobsters, crabs, yabbies and bait, hand-held spears or spearguns, bait pumps and small crab and prawn nets. The NSW Government's Freshwater and Saltwater Recreational Fishing Guides provide a comprehensive summary of the above rules¹.

¹ See: www.dpi.nsw.gov.au/fisheries/recreational/info/guide

2.1.4 Closures

Fishing closures are implemented from time-to-time in NSW waters. There are very few areas totally closed to recreational fishing. There are many different types of closures including fishing area, season or gear based restrictions and reasons for their use including protecting biodiversity in key habitat locations (for example intertidal protected areas), providing protection for breeding fish and minimising interaction between user groups.

2.1.5 Assessment and review of recreational fishing rules

Annual scientific fisheries resource assessments are used to determine the population status of fish species harvested by commercial and recreational fishers, and to identify the need for management intervention. This information is also used during periodic reviews of NSW fishing rules such as bag and size limit reviews, to help conserve fish stocks and mitigate the impacts of increasing pressure on fisheries resources. Increasing efficiencies in fishing methods also need to be monitored and controlled in terms of their impact on target and by-catch species. The most recent reviews were completed in 2000 and 2007. The next review of fishing rules will commence in 2011. These processes involve consultation and input from the Advisory Council on Recreational Fishing and the broader community.

2.1.6 The NSW recreational fishing fee ('licence')

A recreational fishing licence has been a requirement to fish in freshwater since 1998 and an all waters recreational fishing licence was introduced in 2001. There are four fee options, including 3 day (\$6), one month (\$12), one year (\$30) and 3 years (\$75). A number of exemptions also apply for pensioners, children and Aboriginal people (further details are available in the saltwater and freshwater fishing guides).

All revenue raised from the recreational fishing fee is placed in the Recreational Fishing Trusts. There are two Trusts, one for freshwater and one for saltwater. A total of \$13.4 million was raised through licence sales in 2008/09 (see Appendix 1 for more details). A five-year Investment Plan for recreational trust expenditure has been developed in consultation with the Advisory Council on Recreational Fishing (ACoRF).

2.1.7 Threatened species

In NSW there are currently 23 species, populations and ecological communities of fish and marine vegetation listed as threatened with extinction, including the following which are relevant to recreational fishing:

- *Critically endangered species* - Grey nurse shark;
- *Endangered species* - Eastern Freshwater Cod, Trout Cod, Macquarie Perch, Southern Bluefin Tuna;
- *Endangered populations* - Eel Tailed Catfish (Murray-Darling Basin population);
- *Vulnerable species* - Silver Perch, Great White Shark, Black Cod; and
- *Key threatening processes* - Degradation of native riparian vegetation; fishing in areas important for the survival of threatened fish species; introduction of fish to waters within a river catchment outside their natural range; introduction of non-indigenous fish and marine vegetation to the coastal waters of NSW.

The *Fisheries Management Act 1994* provides for the declaration of critical habitat for endangered and critically endangered species where required, the preparation of Priorities Action Statements, and recovery and threat abatement plans to restore threatened species to a position of viability in nature, as well as to manage key threatening processes.

2.1.8 Protecting aquatic habitats

The NSW Government plays a key role in the protection of aquatic biodiversity and fish habitat. Legislative controls are in place to enable assessment of any works that harm marine

vegetation; involve dredging or reclamation; obstruct fish passage; construct or modify barriers to fish passage; harm spawning areas for certain fish; use explosive substances in waters; or involve aquaculture developments.

The key species targeted by recreational fishers in NSW spend most of their life in estuaries, mainly as juveniles, where they receive food and protection from predation. Likewise, all native freshwater fish require a diverse array of habitats as food and spawning and nursery areas. However since European settlement, NSW has lost over 60 per cent of all its coastal wetlands, while 97 per cent of assessed river length in NSW has been modified in some way. Fish passage in many rivers and creeks has been blocked by floodgates, weirs, causeways and impoundments. These impacts have reduced production of recreational fish species

2.1.9 Aquatic pests and diseases

Many exotic fish species have been accidentally or deliberately introduced into NSW waters and have become widespread, including Carp, Redfin and Banded Grunter in freshwater and Caulerpa (algae) and European Shore Crab in saltwater. Australia is relatively free of many of the major fish diseases present overseas, however, some diseases detected in NSW include:

- *Red spot disease* - caused by a fungus that shows as red lesions (sores) on fish. Red spot disease occurred on the North Coast in 2009;
- *Perkinsus* - a protozoan parasite, known to affect Abalone; and
- *Nodavirus* – has been detected in Australian Bass, affecting fish stocking in NSW.

Introduced pests and diseases pose environmental, social and economic threats by damaging aquatic biodiversity, which in turn can impact on our fisheries resources. The NSW Government manages these threats by preventing the entry of aquatic pests and diseases into NSW; containing and eradicating threats before they become established and spread in NSW; and ensuring cooperation between government agencies, industry and the community in dealing with pests and diseases.

2.2 Marine protected areas

A marine protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

Marine protected areas are recognised as a key tool to conserve marine biodiversity. The *United Nations Convention on Biological Diversity (1992)*, of which Australia is a party, aims to establish a system of effectively managed marine protected areas by 2012. In 1998, all Australian Governments committed to establishing a *National Representative System of Marine Protected Areas*.

2.2.1 NSW system of marine protected areas

Developing a Representative System of Marine Protected Areas in NSW: an Overview (2001) sets out the NSW Government's goals and principles for establishing a system of marine protected areas that fulfils its commitments to the *National Representative System of Marine Protected Areas*.

NSW has made a significant contribution to the national system since 1998 through the establishment and management of six large multiple use marine parks. The NSW marine protected area system also includes 12 aquatic reserves and 62 marine protected areas within national parks and nature reserves (see Appendix 2).

Marine protected areas conserve marine biodiversity and maintain ecological processes, as well as providing opportunities for ecologically sustainable recreational and commercial fishing and public appreciation, understanding and enjoyment.

2.2.2 Processes for establishing marine parks

The *Marine Parks Act 1997* establishes a Marine Parks Authority to oversee the declaration and management of a comprehensive system of marine parks. The Authority jointly advises the Minister for Climate Change and the Environment and the Minister for Primary Industries on the declaration and management of marine parks, and considers advice from the Marine Parks Advisory Council and park based advisory committees.

The general process for establishing NSW marine parks involves identification and selection, declaration, zoning plan development and implementation and is based on agreed guidelines for establishing the national representative system of marine protected areas.

2.2.3 Identification and selection

The Integrated Marine and Coastal Bioregionalisation of Australia (Australian Government 1998, 2006) describes a series of bioregions (areas that have similar characteristics) for State and Commonwealth waters. Six 'meso-scale' bioregions include NSW waters.

Science based biodiversity assessments of each bioregion were completed between 2001 and 2005. The assessments identified conservation values, ecological condition and vulnerability and underpinned the identification of candidate areas for marine parks. Social, economic and cultural factors were considered in selecting marine parks.

NSW marine parks aim to contain a comprehensive, adequate and representative sample of marine biodiversity. Comprehensiveness refers to the extent to which the full range of ecosystems and habitats in and across all bioregions are included in marine parks; adequacy is the degree to which the size, boundaries and location of marine parks are adequate to maintain biodiversity and ecological patterns and processes, particularly the ability to manage activities that impact on such patterns and processes; and representativeness is the extent to which marine parks reflect the range of biological diversity of communities within ecosystems and habitats.

2.2.4 Declaration

Declaration involves describing and naming the area of a marine park. Declarations are made by the Governor under sections 6 and 7 of the *Marine Parks Act 1997*.

2.2.5 Zoning plan development

A marine park zoning plan is a regulation that protects examples of marine biodiversity in each park and provides for a range of sustainable uses, including fishing, diving, whale and dolphin watching, boating and cultural activities.

Sanctuary zones provide the highest level of protection to biodiversity, natural and cultural features. All forms of fishing and collecting activities are prohibited. Activities that do not harm plants, animals and habitats are permitted.

Habitat protection zones conserve marine biodiversity by protecting habitats and reducing high impact activities such as prawn and fish trawling. Recreational fishing and some forms of commercial fishing are permitted in these zones.

General use zones allow a wide range of activities including both commercial and recreational fishing, provided they are ecologically sustainable.

Special purpose zones protect Aboriginal or other cultural features or marine facilities. They are also used for special management needs and specific park management reasons.

Zoning plans are developed with extensive community consultation involving local marine park advisory committees. Draft zoning plans are publicly exhibited for at least three months. Detailed consultation with recreational fishers occurs before and during public exhibition. Input gathered through submissions, community workshops, information stalls, stakeholder focus group meetings and advisory committee meetings is considered in developing and

finalising zoning plans. In each case draft zoning plans have been modified to address issues raised during consultation.

A case study on the process for establishment and zoning of Port Stephen-Great Lakes Marine Park which demonstrates how recreational fishing input was considered is included at Appendix 3.

2.2.6 Implementation

Informing and educating the community and users about the new zoning plan for a marine park is the key focus prior to commencement of the plan, and is ongoing thereafter. Important park management activities include presentations to community groups, distribution of zoning plan user guides, local information stalls and installing signage and marker buoys.

Commencement of a zoning plan completes the establishment of the marine park. Park management activities including education and community liaison, research and monitoring, permitting and development assessment and compliance and enforcement activities support the implementation of the zoning plan.

Ongoing involvement of the community in marine park management occurs primarily through the local marine park advisory committee (see Terms of Reference 1b) and through local activities such as the *Discovery* program, specific research and monitoring activities, information nights, community workshops and involvement with local school groups.

2.2.7 Other types of marine protected areas – aquatic reserves

The *Fisheries Management Act 1994* provides for the declaration and management of aquatic reserves to conserve the biodiversity of fish and marine vegetation and, where consistent, to protect fish habitat, threatened species, populations and ecological communities, and to facilitate educational activities and scientific research.

Twelve aquatic reserves cover around 2,000 hectares of NSW waters. Ten of these are located in metropolitan Sydney from Barrenjoey Headland (Palm Beach) to Shiprock (Port Hacking). Aquatic reserves at Cook Island on the far north coast and Bushrangers Bay on the south coast are popular dive sites. Many of these reserves aim to conserve invertebrates on rocky shores, but others include important areas of estuaries and ocean waters and fishing and other restrictions vary.

2.2.8 Other types of marine protected areas – National parks and nature reserves

The *National Parks and Wildlife Act 1974* provides for the conservation of natural and cultural heritage, and the management of wildlife, including many marine and coastal species but not fish. The 2010 State Plan commits to the continued development of a comprehensive, adequate and representative system of reserves and this is being guided by the Government's National Parks Establishment Plan.

The objects and management principles of the *National Parks and Wildlife Act 1974* make it clear that national parks aim to both conserve biodiversity and provide for sustainable visitor use and enjoyment.

Marine protected areas are contained in 62 national parks and nature reserves. These parks include ocean coastlines, more than 10 per cent of NSW estuarine waters, shorelines and wetlands, coastal lakes, intertidal ocean beaches and rocky shores, and ocean islands. Some areas of national parks and nature reserves overlap marine parks (such as Myall Lakes) or adjoin aquatic reserves (for example, Barrenjoey Head and Towra Point), while Bouddi National Park includes a 300 hectare marine extension that is closed to all fishing under the *Fisheries Management Act 1994*.

A Plan of Management is required under the Act for each reserve but does not regulate recreational fishing. While recreational fishing continues to be managed under the *Fisheries Management Act 1994*, national parks provide for a wide range of fishing opportunities and

fishers commonly use parks to access waterways, including walking trails, sealed and unsealed roads and kayak and boat launching areas.

2.3 Efficacy of marine protected areas

Recreational fishing can be enjoyed in every marine park in NSW, with between 72.5 per cent and 88 per cent (in area) accessible for fishing under current marine park zoning plans. Over all NSW coastal waters, just 6.7 per cent (in area) is set aside as 'no take sanctuary zones', and less than 4 per cent of ocean beaches and rocky shores are within sanctuary zones. Marine protected areas are designed for conservation but may benefit recreational fishing by protecting extensive areas of habitat, generally improving the health and resilience of the marine environment, and reducing commercial fishing such as trawling, mesh netting, purse seining, setlining and fish trapping.

More than \$30 million has been spent to reduce commercial fishing effort in marine parks to offset the reduced access to sanctuary and habitat protection zones and prevent transfer of effort to other areas. Around 170 fishing businesses have been voluntarily bought out and licences and shares cancelled. Across the marine park system this has resulted in the removal of trawling, a high impact commercial fishing method from all sanctuary and habitat protection zones and from Batemans Marine Park entirely. The 2004 Environmental Impact Assessment and 2007 Fishery Management Strategy for the Ocean Trawl Fishery identified large refuge areas as the most effective way of addressing concerns about the impact of trawling on biodiversity.

Many key recreational fishing locations in marine parks such as recreational fishing havens are within habitat protection zones where recreational fishing can occur but many forms of commercial fishing such as trawling and mesh netting are prohibited and purse seining and beach hauling activities are restricted. The Brunswick River entrance, Coffs Coast, Lord Howe Island Lagoon and fringing reef, North Rock (Lord Howe Island), nearshore areas of Nelson Bay, Fingal and Anna Bay, extensive areas of Jervis Bay including on the Becnroft and Bherwerre Peninsulas and Middle Ground, the Clyde River, Tuross Lake and Wagonga Inlet (Narooma), are examples of these locations.

National parks and reserves can help to protect the catchments of many rivers and estuaries that are important for recreational fishing such as the Clyde River and Tuross River in Batemans Marine Park and Wallis Lake, and extensive areas of key fish habitats such as saltmarshes, mangroves, and seagrasses. Infrastructure that supports recreational fishing, such as jetties and boatramps, roads and walking tracks and campgrounds are provided in many national parks and reserves.

Mining is prohibited in marine parks and development activities within and affecting the various types of marine protected areas must have regard to any management objectives or the case of marine parks the objective of the zone. Permits are also required to undertake some activities. For example, anchoring is prohibited in some sensitive reef or seagrass habitats, and commercial tourism operators require permits.

Day-to-day management of marine parks helps to ensure rapid response to detection of any incursions of marine pests and responses to incidents such as oil spills, many of which can directly affect recreational fishing.

Marine protected areas generally provide a higher level of protection for biodiversity and ecological processes than surrounding waters. The efficacy or 'capacity to produce effects' for biodiversity conservation has been the subject of extensive research in Australia and internationally and the scientific literature is rapidly expanding.

Marine protected areas can lead to increased abundance and sizes of marine animals, marine communities and food-webs that are in a more natural condition, better protection for threatened species, improved understanding of the marine environment and human impacts on it and improved community engagement. They also provide a focus for integrated management across the terrestrial marine divide including catchment protection initiatives.

Notably many marine parks about coastal national parks which provide significant catchment protection benefits.

2.3.1 Effects on species abundance, size and food webs

Fishing impacts on temperate reef systems generally include declines in the abundance of large predators, increases in the abundance of grazing invertebrates, and changes in algal communities, which can cascade through food webs and transform ecosystems. Once fishing ceases, each trophic level tends to recover sequentially which greatly prolongs the number of years before the ecosystem can be considered fully recovered (Edgar et al. 2009). Some of Australia's leading marine protected area researchers suggest it will take decades to observe, predict, and validate the full implications of marine reserves (Babcock et al. 2010). Marine protected areas networks have potential to deliver benefits greater than the sum of their individual parts (Gaines et al. 2010).

The following examples highlight effects observed in recent Australian and international research.

- A global synthesis of published scientific literature for 124 marine reserves in 29 countries (Lester et al. 2009), including Australia, confirms that even small marine protected areas can have positive biological responses, and that the effects are at least as strong in temperate waters as in tropical waters. While responses to protection vary widely, on a reserve by reserve basis this global study indicated a mean biomass increase of 446 per cent across all of the reserves. Further analysis comparing data from temperate reserves in Australia, New Zealand and Canada, and excluding tropical reserves in locations with poor fisheries management still shows comparable increases in biomass, density, size and richness of organisms (with an increase of mean biomass of 975 per cent).
- Research from the Great Barrier Reef Marine Park indicates that the 2004 rezoning has led to a rapid and twofold increase in the number and size of fish on many no take reefs, but one of the most ecologically important effects has been decreased outbreaks of coral eating crown of thorns starfish in no-take zones (McCook et al. 2010).
- Analysis of 14 marine protected areas across Australia found that total fish biomass and density of large fish increases significantly based on the age of sanctuary zones relative to fished zones (Edgar et al. 2009). Reef sites protected for 20 years including Fly Point in Port Stephens–Great Lakes Marine Park, averaged twice the total fish biomass present relative to nearby fished zones, with no indication that the trend has yet stabilized.
- In Jervis Bay Marine Park eight comprehensive surveys of fish, macro-invertebrates and macro-algae on shallow rocky reefs were conducted from 1996–2007. To date, comparisons between sites in sanctuary zones and habitat protection zones have shown a trend for greater abundance of some fish species and greater abundance of large fish over 300mm in length in sanctuary zones. However, longer-term surveys will be required before the significance of these trends can be reliably assessed.

Direct effects on target fish species, usually high order predators, can be rapid. However, indirect effects including on food webs and habitats can take more than a decade or longer to observe. The response of systems is also considered dependent on the level and intensity of fishing that previously occurred, the extent of habitat that fish are associated with and overall productivity. Lightly fished sites change more slowly than more productive heavily fished sites.

2.3.2 Better protection for threatened species

Sanctuary or no take zones are particularly effective for recovery of threatened species such as black cod and grey nurse shark. Line fishing is recognized by the Fisheries Scientific Committee as a key threatening process in areas important for these species.

2.3.3 Improved understanding of the marine environment

NSW marine protected areas have provided a focus for research and some relatively natural reference sites to improve our understanding of the marine environment and human impacts on it, including the impacts of fishing.

There is a well-developed research and monitoring program in place in NSW marine parks. In 2009/10 around 40 research projects are underway, supported by a budget of about \$900,000. For example, an extensive survey of the distribution and abundance of black cod is underway in Cape Byron, Solitary Islands and Port Stephens Great Lakes Marine Parks and Cook Island Aquatic Reserve.

The seabed habitat mapping capability developed during planning and implementation of NSW marine parks has benefited areas outside of marine parks. A \$1.1 million, three year study funded by the Australia Research Council involving marine park researchers, industry and academic collaborators is exploring the effect of human impacts on estuaries.

2.3.4 Community engagement

The efficacy of marine protected areas ultimately depends on strong community interest, awareness and support.

Surveys undertaken at Solitary Islands, Jervis Bay and Lord Howe Island marine parks indicate high levels of community support for these marine parks and their sanctuary zones. A telephone survey of 400 people in the Coffs Harbour region in 2008 indicated 87% of respondents were in favour of conserving the marine park and 80% of respondents supported sanctuary zones in the zoning plan (McGregor Tan Research 2008a). A similar survey indicated that 82% were in favour of the sanctuary zones in Jervis Bay Marine Park and that general awareness was high with 78% of respondents indicating that they knew that the area around Jervis Bay was a marine park (McGregor Tan Research 2008b). A recent survey on Lord Howe Island (in prep.) found that 81% of 500 respondents were aware that the surrounding waters were part of a marine park, with 98% supporting the marine park.

Surveys for Who Cares about the Environment 2009 included 2003 people and found that 86% of respondents agreed or agreed strongly that some areas of the marine environment should be protected even if it meant recreational and commercial fishing is excluded. Almost half (47%) of the respondents felt that conservation of the marine environment had become better or much better over the previous three years, while almost one-third (29%) felt there had been little or no change.

2.3.5 Monitoring efficacy over time

The efficacy of marine protected areas will continue to be assessed through ongoing scientific research and monitoring programs which inform the review of zoning and management plans.

Statutory reviews of each zoning plan now occur initially five years after commencement, and then at ten yearly intervals to determine whether the plans continue to meet the objects of the *Marine Parks Act 1997*. This provides an opportunity for adaptive management in response to new information.

Efficacy also depends on, and is supported by other biodiversity conservation and resource management efforts including sustainable fisheries management and wildlife management, and other programs such as pollution reduction, catchment management and boating management.

2.4 Targeted scientific research and monitoring

In collaboration with other research institutions, the NSW Government undertakes a comprehensive science and research program focusing on improving the knowledge of fisheries conservation and marine protected areas, commercial and recreational fisheries, and the ecosystems in which the various fisheries sectors operate. Areas of research include:

Wild fisheries

- *Fisheries technology*: develops and tests commercial and recreational fishing gear to improve selectivity and reduce unwanted catches; develops by-catch reduction devices; assesses recreational fish hook mortality; estimates impacts of fishing gear on the selectivity and mortality of key species.
- *Fisheries biology*: investigates the life history characteristics (age, growth, reproduction, movements, habitat relationships) of key fish to perform population modelling.
- *Fisheries assessments*: responsible for assessing the exploitation status of key fish species; assesses population-scale impacts of commercial and recreational fisheries; samples and surveys commercial and recreational catches; provides scientific advice on resource assessments of key species.

Fisheries ecosystems

- *Biodiversity and habitats*: monitoring the condition of riverine and marine systems; distribution, abundance and genetic population structure of threatened and pest species; impacts of pest species and control techniques; evaluating fishways and other barriers to fish passage; evaluating effectiveness of marine protected areas.
- *Ecosystem function*: includes quantitative assessments of the functioning of aquatic systems and the connectivity between systems and ecosystem-based management and modelling.

Marine parks

- *Habitat mapping*: state-of-the-art acoustic technology and rigorous video ground-truthing is used to identify, map and better understand major habitats in marine parks and adjacent waters to ensure representation in the marine park system. For example, over the past five years, approximately 50,000 hectares of seabed habitats have been mapped in marine parks, 50,000 hectares in NSW waters and an additional 55,000 hectares of existing data has been incorporated into maps.
- *Fish communities*: diver surveys of reef fish in shallow waters and baited remote underwater video surveys of fish communities in deeper waters, with a program being implemented across the marine parks system.

An independent review of the research and monitoring program for NSW marine parks is nearing completion and is informing the development of a new Strategic Research Plan for 2010-2015.

More information on key research programs relevant to recreational fishing is available in Appendix 4.

2.5 Fisheries and marine park compliance

Fisheries officers and marine park rangers have reciprocal enforcement powers to ensure compliance with fisheries and marine park rules. Two key strategies underpin the basis of all fisheries and marine parks compliance in NSW:

- maximising voluntary compliance; and
- creating an effective deterrence to illegal activities.

There are 92 fisheries officer positions based across NSW and 10 marine park ranger positions. Compliance programs are developed to deliver tactical responses (responding to an immediate threat of non-compliance) or strategic responses (developed using intelligence to address a persistent or emerging compliance problem).

Consistent compliance operational procedures are in place for fisheries officers and marine park rangers and joint planning and operations with other agencies is common.

2.5.1 Compliance effort and activities in recreational fishery programs

Over the three year period from 2006-07 to 2008-09, 40 per cent of the total compliance effort of fisheries officers was aimed at recreational fishing compliance. This is the largest single program component. On average, a total of over 50,000 compliance contacts were made each year over the past four years.

Fisheries officers and marine park rangers inspect recreational fishers' activities to ensure compliance with recreational fishing rules, including bag and size limits and gear restrictions, and compliance with the recreational fishing fee. Fisheries officers regularly patrol waters that are closed to commercial fishing (e.g. recreational fishing havens) or closed to all fishing, including marine park sanctuary zones. They also inspect and report on commercial fishing, aquaculture operations and investigate conservation issues such as habitat destruction, reclamation and damage to marine vegetation.

2.5.2 Compliance responses and trends

Fisheries officers and marine park rangers have a number of compliance responses that they apply, depending on the nature and severity of the offence including cautions, penalty notices and prosecutions. Most recreational fishing offences are dealt with by way of cautions or penalty notices. Verbal and written cautions provide opportunity for officers to exercise discretion when unintentional offences are detected. Penalty notices are designed to effectively deal with medium impact offences. Prosecution may occur with for more serious offences.

Examination of recreational fishing compliance trends over the four year period from 2004/05 to 2007/08 shows that compliance rates overall have remained stable at around 88 per cent. Further information on fisheries compliance is provided in Appendix 5.

3 Terms of Reference 1(b) – the effectiveness and efficiency of the current representational system of trusts and advisory committees that advise government departments and statutory authorities

The NSW Government receives advice on recreational fishing matters from the Advisory Council on Recreational Fishing. Recreational fishers are also represented on the Marine Parks Advisory Council, and on each local Marine Park Advisory Committee.

3.1 Ministerial Advisory Council on Recreational Fishing

The Advisory Council on Recreational Fishing (ACoRF) is established under the *Fisheries Management Act* to provide advice to the Minister for Primary Industries on matters relating to recreational fishing. The Minister appoints members, who have expertise in one or more specific areas relating to recreational fishing, including; estuary fishing, offshore fishing, freshwater fishing, underwater fishing, sale of fishing tackle, the media (reporting on fishing), charter boat fishing, Aboriginal culture, a nominee of the Nature Conservation Council, the Director-General or a nominee of the Director-General, and other persons as the Minister considers appropriate.

Membership is widely advertised through an expression of interest process. The Council is chaired by an independent chairperson.

Whilst being able to express views to the NSW Government on a range of recreational fishing issues, ACoRF is not an independent representative or lobbyist group.

The Minister for Primary Industries is required under the *Fisheries Management Act* to consult ACoRF regarding priorities for expenditure from the Trusts. There are two sub committees of ACoRF, the Recreational Fishing Saltwater and Freshwater Trust Expenditure Committees.

3.2 NSW Recreational Fishing Trust Expenditure Committees

The Expenditure Committees were established as non-statutory sub committees of ACoRF to assist with providing advice to the Minister for Primary Industries on expenditure priorities from the Recreational Fishing Trusts.

Funds in the Trusts can only be allocated to a range of programs to improve recreational fishing, as set out in the *Fisheries Management Act 1994* including: fish stocking and other measures to enhance recreational fishing, research, management and licensing, compliance, and consultative arrangements.

The Expenditure Committees review new applications for funding and monitor the progress of programs currently funded by the Trusts. In 2008/09, the Committees reviewed over 170 new small and large grant applications. The ACoRF ensures the expenditure recommendations from its sub committees are consistent with current Trust funding priorities and policies.

Membership on the Expenditure Committees is regionally based to ensure the benefits of the Trusts are distributed throughout NSW.

3.3 Marine Parks Advisory Council and Advisory Committees

The Marine Parks Advisory Council and local marine park Advisory Committees are established under Part 6 of the *Marine Parks Act 1997*.

The Advisory Council advises the Marine Parks Authority and jointly advises the Minister for Primary Industries and Minister for Climate Change and Environment on marine park matters from a state-wide perspective. The local Advisory Committees for each marine park advises on zoning plans and management for their particular park. Local Advisory Committees have

a statutory role in developing and commenting on draft zoning plans, zoning plan review reports and marine park operational plans.

Representatives of key stakeholder groups, including recreational fishers, are members of the Advisory Council and local Advisory Committees. Besides recreational fishers, members include representatives of the Australian Government, conservation, marine science, Aboriginal people, tourism industry, commercial fishers, scuba divers and, for Advisory Committees, local councils.

3.4 Consultation with recreational fishing organisations

There are a number of organisations in NSW representing the interests of various recreational fishing activities. The NSW Government regularly interacts with these organisations to seek additional stakeholder input. Some of these groups include the:

- NSW Council of Freshwater Anglers;
- Australian National Sportfishing Association NSW Branch;
- NSW Game Fishing Association;
- Recreational Fishing Alliance of NSW;
- Underwater Skindivers and Fisherman's Association;
- Australian Fishing Trade Association; and
- NSW Fishing Clubs Association.

I&I NSW maintains a comprehensive database of over 900 fishing organisations and clubs for regular communication, including mailouts of discussion papers, codes of practice and consultation on specific issues. Issue based meetings are also held with fishing organisations and clubs, as required.

3.5 Cross Sector Fisheries Management Working Groups

From time to time, working groups are established to consult on cross sector issues when developing options for future management arrangements. Resource Planning Groups are being used to develop and implement fisheries management and conservation arrangements, relevant to all stakeholder groups, including commercial fishers, recreational fishers, indigenous and conservation representatives and, where relevant, aquaculture representatives. These groups review available information, management issues, research and information needs for a particular resource, and develop a framework for the management of that resource.

4 Terms of Reference 1(c) – the value of recreational fisheries to the economy in New South Wales

4.1 Economic benefits of recreational fisheries

Economic information is important for assessing the social and economic benefits to the community from fisheries as part of ecologically sustainable development. Key findings of several surveys are outlined below.

- Pepperell (1996) estimated direct and indirect expenditure on recreational fishing in NSW to be \$809 million. Regional expenditure represented 58% of total expenditure and metropolitan 42%.
- Henry and Lyle (2003) estimated direct and indirect expenditure on recreational fishing in NSW to be \$554 million in 2000/01. Regional expenditure represented 52% of total expenditure and metropolitan 48%. Note: this economic information was collected as part of a national survey focussing on estimating recreational fish catch.
- The variation in the economic estimates between the two studies above can be attributed to differences in sampling methodologies, sample sizes and degree of extrapolation.
- Dominion Consulting (2001) estimated direct and indirect expenditure on recreational trout fishing to be \$70 million in the Snowy Mountains area, which supported between 450 and 700 jobs.
- Dominion Consulting (2005) estimated direct and indirect expenditure on recreational fishing in Bermagui/Narooma to be \$25 million in 2003/04, which supported 260 direct and indirect jobs. Around 50% of the people fishing in Bermagui/Narooma were visitors.
- Dominion Consulting (2005) estimated direct and indirect expenditure on recreational fishing in Port Macquarie was \$23 million in 2003/04, which supported 276 direct and indirect jobs. Around 75% of the people fishing in Port Macquarie were visitors.
- Dominion Consulting (2003) estimated that direct and indirect expenditure by Sydney anglers associated with overnight and day fishing trips to coastal NSW was \$134 million, which supported 1,213 jobs.

4.2 Tourism and marine parks

The value of recreational fishing to regional communities including tourism has been a factor in the development of marine park zoning plans. Research has shown increasing tourism in regions including marine parks. While it is not possible to attribute this solely to marine park establishment it confirms that overall declines have not occurred. For example

- An increase of 28% of accommodation takings and 29% in employment in the accommodation sector occurred in Coffs Harbour from 2002–2007.
- Accommodation expenditure in the Shoalhaven local government area increased from \$4 million in 2002 to \$6.8 million in 2005. This increase in expenditure coincided with the commencement of the zoning plan of the Jervis Bay Marine Park and no overall decline in expenditure was recorded during the period.
- Visitor surveys conducted at Jervis Bay Marine Park found that around 34% of visitors surveyed indicated that the marine park was the 'sole reason' for their visit, while 80% indicated that it was either an important or very important reason for visiting Jervis Bay.

5 Terms of Reference 1(d) – the gaps in existing recreational fishery programs, including the number and location of Recreational Fishing Havens

The NSW Government continues to implement a range of programs to improve recreational fishing opportunities consistent with the principles of ecologically sustainable development. Many of these programs are funded through the Recreational Fishing Trust program. Some of the major initiatives are outlined below.

5.1 Fish stocking

Freshwater fish stocking has been carried out for over 100 years in NSW. About 3.5 million Trout and Salmon are produced each year for stocking in the Snowy Mountains, Southern Highlands and Orange regions and Central and New England tablelands.

The NSW Government produces around 2 million native fish, including Murray Cod, Golden Perch, Silver Perch and Bass from hatcheries each year for stocking into a large number of freshwater impoundments. Approximately 800,000 fingerlings are also stocked annually through the community dollar-for-dollar program. A conservation stocking program is also in place aimed at recovering threatened freshwater native fish stocks, including Eastern Freshwater Cod and Trout Cod.

Following trial research stockings of prawns and mulloway, an Environmental Impact Statement for marine stocking in NSW is being prepared, which will facilitate development of a strategic framework to allow marine stocking to proceed in a manner that minimises the risks and impacts of stocking on the ecosystem. More details on fish stocking are provided in Appendix 6.

5.2 Fish aggregating devices

Fish aggregating devices (FADs) provide structure in offshore oceans which attract pelagic fish such as Mahi-Mahi (Dolphinfish), Tuna and Marlin. A total of 25 FADs are now deployed along the coast between Tweed Heads and Eden before each summer fishing season.

5.3 Artificial reefs

In 2004, the NSW Government began assessing the viability of constructing artificial reefs in NSW estuaries. The reefs are constructed of “reef balls”, which are specially designed concrete modules that promote marine growth and provide fish with a complex habitat. Today, artificial reefs are located in Lake Conjola, Merimbula Lake, Lake Macquarie, Botany Bay and St Georges Basin. More reefs are planned in other estuaries.

The feasibility of deploying artificial reefs in ocean waters is also being investigated. The major challenge is designing and building an appropriate structure that can withstand the harsh NSW coastal conditions whilst minimising ecological impacts. An environmental assessment for deploying three artificial reefs off Newcastle, Sydney and Wollongong is currently being prepared. Each reef unit will weigh up to 35 tonnes and be up to 12 metres high to create high quality reefs for recreational fishing.

5.4 Recreational fishing havens

In May 2002, 30 estuarine areas along the NSW coast became recreational fishing havens. Details on the locations of recreational fishing havens are provided in Appendix 7. Any approach for additional recreational fishing havens will be considered by the NSW Government on a case-by-case basis and take into account stakeholder and community views, as well as seafood supply.

5.5 Enhancing recreational fishing access

Historically recreational fishers have enjoyed widespread access to creeks, dams, estuaries and ocean waters via numerous access points across NSW. However, over time some

access points have been lost through foreshore development, road closures and various environmental planning processes.

The NSW Government facilitates recreational fishing access through partnerships between state agencies and key stakeholders, negotiating access arrangements on behalf of stakeholders and developing management solutions, including Crown Land important for angler access.

A recent example includes Paddy's Corner reserve on the Thredbo River near Jindabyne, which is now managed by the Monaro Acclimatisation Society. Fishing trails along the Guy Fawkes River have also been implemented with the Ebor Progress Association. Fence stiles, signage and walkways have been installed to greatly enhance recreational fishing access in this area.

5.6 Fishcare Volunteers

This Fishcare Volunteer program involves 380 community based volunteers across NSW, educating fishers about fishing rules, fish habitats and safety. Volunteers come from all sections of the community, including from Aboriginal communities as well as other culturally and linguistically diverse communities, such as Arabic, Chinese, Italian and Greek communities. Each year, volunteers participate in over 600 large events and contact more than 125,000 fishers and members of the public.

5.7 Fishing workshops

On average around 3,000 children attend NSW Government fishing workshops each year including workshops for special needs groups and communities from culturally and linguistically diverse backgrounds. The workshops are designed to teach responsible fishing practices and the basics of fishing to new entrants to the sport.

5.8 "Get hooked...its fun to fish" primary schools education program

The "Get Hooked...its fun to fish" program is designed to teach children about the importance of aquatic habitats and to introduce them to safe and responsible fishing practices. The program is targeted at primary school students and comprises of six teaching modules. Seven thousand children have so far participated in the program.

5.9 Advisory publications

The NSW Government produces a wide range of fishing guides, brochures, plastic measurers and stickers every year to help anglers keep up-to-date on the latest fishing rules and sustainable fishing practices.

5.10 Restoring aquatic fish habitat

The NSW Government is involved in restoring degraded habitats using targeted programs as a means of improving productivity and conservation outcomes for native fish including:

- delivering improvement to fish passage at over 200 sites providing access to more than 2,000 km of riverine habitat;
- returning in excess of 5,000 large woody habitats (or snags) to NSW rivers; and
- modifying the operation of almost 100 tidal floodgates.

The development of the NSW Habitat Action Plan is a first step in delivering a coordinated response targeting habitats that are critical to fisheries production. The Plan is anticipated to be released in 2010.

5.11 Better boating program

Fishing is the main activity for around 60 per cent of recreational boaters. Since 1998 over \$20 million has been spent on around 450 boating infrastructure improvements across NSW. The NSW Government's Better Boating Program allocates up to \$5 million annually to further improvements to wharfs and boat ramps across Sydney and in regional NSW and recreational fishers are a key beneficiary of these works.

5.12 Opportunities for funding from the Recreational Fishing Trusts

Each year the NSW Government calls for expressions of interest from the community to apply for funding from the Recreational Fishing Trusts. A dedicated Trust manager plays a key role in working with recreational fishing organisations and community groups to develop high quality projects that benefit recreational fishing, particularly fishing infrastructure.

6 Terms of Reference 1(e) – Ecologically sustainable development issues related to improving recreational fishing

The NSW Government has integrated the principles of ecologically sustainable development into the fisheries management and the many programs aimed at promoting and facilitating sustainable development of aquatic resources and ecosystems at the local and regional level. Many of these initiatives have been outlined in earlier parts of this submission. Some of these and other initiatives include:

- dedicated research on fisheries resources and ecosystems to enhance management on an ecosystem basis;
- provision of mechanisms for effective input and participation by fishers and the community in the development and implementation of fisheries ecosystem management;
- widespread consultation to address cross-sectoral issues in coastal and freshwater management, total catchment management and fisheries management;
- ongoing structural adjustment of the commercial fishery sector through a range of reforms;
- awareness and education campaigns for fishers and the general public;
- cooperatively working to resolve management boundaries between the Commonwealth and NSW, and between adjoining states, on an ecological basis
- comprehensive state of the environment reporting, including status of fisheries resources and ecosystems;
- development of strategic management plans, consistent with ESD principles;
- undertaking environmental assessments for each major commercial fishery, as well as recreational fishing programs including fish stocking and artificial reefs;
- developing programs to reduce bycatch in commercial and recreational fisheries; and
- developing codes of practice and guidelines to support management measures of commercial and recreational fishing and to promote responsible and best practice fishing techniques.

Other key outcomes include:

- NSW Catchment Management Authorities have enhanced or protected 2.6 million hectares of native vegetation, or about seven percent of all the native vegetation on private land in NSW;
- Estuary Management Plans have been completed and adopted for 77 estuaries;
- the \$101.5 million Riverbank program has purchased 106,000 megalitres of water entitlements in the Murrumbidgee, Lachlan, Macquarie and Gwydir valleys;
- the \$1.1 billion Country Towns Water Supply and Sewerage Program delivering improved environmental outcomes for rivers and estuaries via sewerage system upgrades across regional NSW, and will continue until 2016/17; and
- the NSW Government has adopted state-wide targets focused on maintaining or improving the condition of riverine, estuarine and marine waters and ecosystem by 2015.

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Appendices

1. Recreational Fishing Trusts
2. NSW marine protected areas bioregional boundaries
3. Case study: Creation of Port Stephens–Great Lakes Marine Park
4. Targeted research
5. Fisheries compliance
6. Fish stocking in NSW
7. Recreational fishing havens

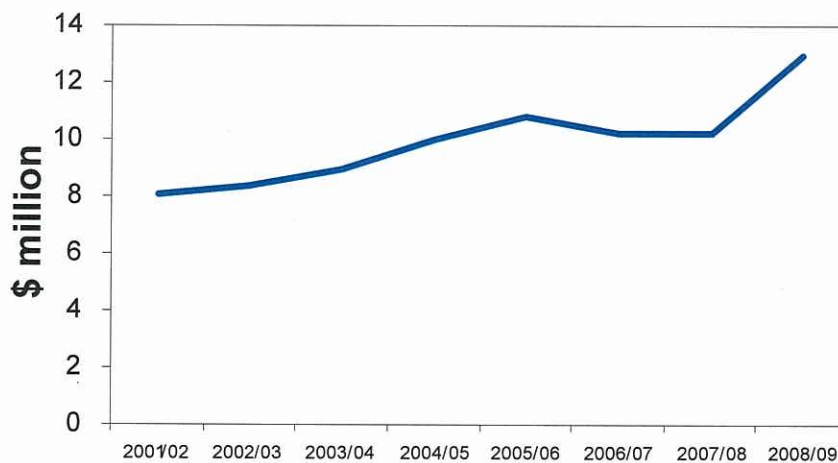
Appendix 1

NSW Recreational Fishing Trusts

All revenue resulting from NSW recreational fishing licence fees is placed in the Recreational Fishing Trusts, as prescribed by section 234 and 235 of the *Fisheries Management Act 1994*.

Revenue increased in 2008/09, mainly as a result of the integration to the NSW Government Licensing Service and the introduction of plastic licences and a licence renewal system.

Annual revenue from recreational fishing fees

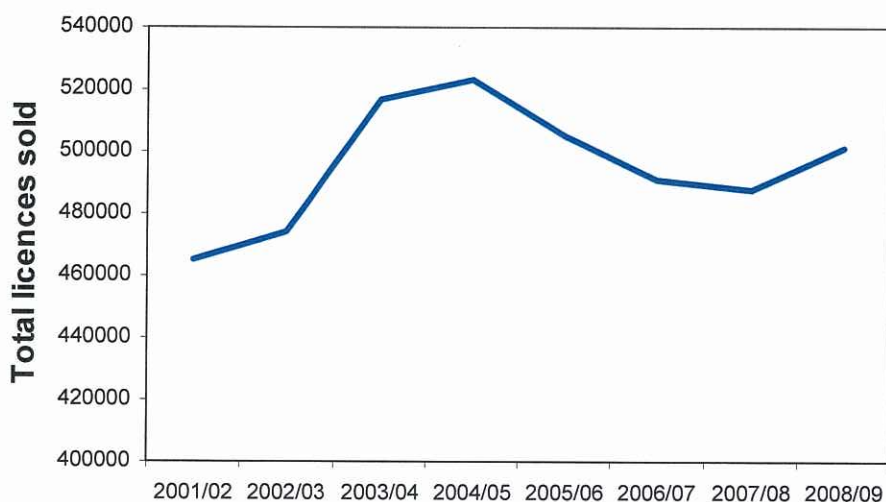


Since 2001, on average 495,000 licences are sold per year. An analysis of licence sales has shown that sales are highly variable from year-to-year for a variety of reasons, including:

- licence renewals, some anglers only renew their licences when they next go fishing, rather than upon expiry;
- some fishers are now choosing to purchase three year licences instead of annual licences;
- drought, inland sales vary according to prevailing drought conditions; and
- ocean currents and weather, the East Australian Current can vary from year-to-year and can influence offshore water temperatures and associated fishing opportunities.

Cost efficiencies are also being developed to make ongoing improvements to the licence administration system to benefit recreational fishers (e.g. expanding the licence agent network and investigating the feasibility of 3 day licences).

Annual number of licences



NSW Recreational Fishing Trusts Investment Plan 2008/09 - 2012/13

In recognition of the large number of projects funded by the Recreational Fishing Trusts each year, a five year Investment Plan was developed in 2008 in consultation with ACoRF, and its associated Expenditure Committees, to guide the expenditure of funds from the Recreational Fishing Trusts, and to provide a more structured framework for planning and allocating funds to address angler priorities and expectations.

The Investment Plan enables long term commitments to be made for ongoing Trust funded programs and provides better management of funding for tactical and shorter term projects. This has streamlined the administration of Trust funded programs, which is particularly important as hundreds of programs have already been funded since 2001. There is scope for annual reviews of the Plan by the Expenditure Committees and ACoRF to take account of new priorities and to ensure Trust expenditure reflects the expectations of the fishing community.

Trust priorities for expenditure

A key part of the development of the Investment Plan involved re-surveying recreational fishers in 2008 to seek information on how funds from the Recreational Fishing Trusts should be spent. Information was sought from fishers on how aware they were of Trust funded programs, the perceived benefit of these programs and the extent to which these programs should be funded. Key findings of the survey were that most fishers:

- are aware of the many Trust funded programs, either knowing some or all details;
- indicated that all Trust funded programs were of major benefit to recreational fishing; and
- indicated that all Trust programs were worth doing to improve recreational fishing.

Trust partnerships

The Investment Plan highlights opportunities for partnerships between the Trusts, other NSW Government organisations and community groups. Partnerships for some programs are essential as implementation activities may require management, environmental assessment, communication and reporting resources which can be provided by other organisations in a coordinated and integrated way.

Investment accountability

The NSW Government coordinates and manages the administration of the Recreational Fishing Trusts to ensure accountability and transparency in all investment activities. Initiatives undertaken to achieve good governance include:

- Trust program managers are required to submit meeting reports to enable monitoring by the NSW Government and the Expenditure Committees to evaluate progress of programs and to ensure delivery of outcomes;
- following completion of programs, Trust program managers are required to submit a final report and an expenditure statement;
- the NSW Government does an appraisal or site visit of completed programs prior to the final Trust payment being issued to the program manager;
- Trust financial statements are presented in the Department of Industry and Investment's Annual Report and on the Department's website;
- Expenditure Committee and ACoRF meeting outcomes are published on the Department of Industry and Investment's website;
- regular community announcements about Trust expenditure are made and Trust newsletters are produced; and
- independent audits of the Trusts are undertaken, as required.

Funding breakdown

There are two Trust funding options available for applicants. This includes small grants (funding up to \$10,000) for small, local or regional projects to enhance recreational fishing, and large grants (funding of more than \$10,000). The Investment Plan outlines the investment in a wide variety of large grant programs across seven platforms over a five year period (see tables below). To view a full version of the Investment Plan, see: www.industry.nsw.gov.au

**Platform: Recreational fishing enhancement programs
Saltwater Trust**

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Fish aggregating devices (FADs) – a series of fish aggregating devices (FADs) are placed in coastal waters from Byron Bay to Eden to attract pelagic fish such as mahi-mahi and even tunas and marlin.	I&I NSW	\$194,000	\$209,000	\$212,000	\$220,000	\$223,000
Building artificial reefs in estuaries- artificial reefs have been built in Lake Macquarie, Botany Bay, St Georges Basin, Lake Conjola and Merimbula Lake to create new fish habitat for recreational fishing. More reefs will be deployed in other estuaries along the coast.	I&I NSW	\$441,000	\$543,000	\$580,000	\$590,000	\$591,000
Building artificial reefs in ocean waters - I&I NSW proposes to deploy large, purpose built, steel artificial reef units to create offshore fishing locations. The design of the structures will use the worlds best artificial reefs technology to maximise their effectiveness. Further funding for this program will be considered following an assessment of the effectiveness of the reefs in one location.	I&I NSW	\$241,000	\$961,000			
Eastern king prawn stocking in Wallagoot Lake – involves an additional stocking of prawns in 2008 as an extension of the current research prawn stocking program, which is <u>investigating the effectiveness of stocking prawns to enhance recreational fishing.</u>	University of NSW	\$95,000				
Marine stocking of important recreational fish species in coastal waters – involves completion of an Environmental Impact Statement and Fisheries Management Strategy for marine stocking followed by implementation of a marine stocking program of key recreational species in NSW to enhance recreational fishing.	I&I NSW	\$364,000	\$236,000	\$300,000	\$300,000	\$300,000

Freshwater Trust

Program	Proponent	Budget					
		2008/09	2009/10	2010/11	2011/12	2012/13	
Fish stocking: enhanced fish production - I&I NSW operates hatcheries that produce native fish and trout for stocking in freshwater impoundments throughout NSW. Trust funds boost production at the hatcheries, which has led to record numbers of fish being stocked and better fishing.	I&I NSW	\$346,458	\$396,769	\$418,200	\$440,446	\$465,063	
Fish stocking: dollar for dollar program – community grants for fishing clubs to buy native fingerlings for stocking in rivers and dams.	I&I NSW	\$200,000	\$250,000	\$200,000	\$200,000	\$200,000	
Management of fish stocking to ensure responsible stocking practices –undertakes environmental assessments of fish stocking programs in NSW to ensure they are carried out in an ecologically sustainable way.	I&I NSW	\$96,171	\$104,809	\$108,543	\$108,543	\$108,543	
Installation of secondary recirculation unit at Dutton Trout Hatchery – installation of a second re-circulation system to increase the amount of chilled / temperature controlled water in the hatchery used to house fish for stocking.	I&I NSW		\$38,250				
Supporting Fish Hatchery Trainees – capacity development program for work experience students at the Narrandera Fish Hatchery to build expertise in fish breeding technology.	I&I NSW		\$5,000	\$5,000	\$5,000		
Gaden Trout Hatchery - funding for the ongoing operation of the hatchery, including operational costs, including a trial employment of a dedicated tour guide.	I&I NSW		\$434,000	\$429,510	\$442,395	\$455,667	

*Note: Funding details for each project represent budgets, which may include carryover funds from previous financial years.

Platform: Aquatic habitat protection and rehabilitation

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Aquatic habitat protection and fish conservation in the south west region – a conservation manager based in Albury manages fish habitat protection and aquatic threatened species management issues in south west NSW amongst government and non-government organisations, landholders, catchment management authorities and recreational fishing groups.	I&I NSW	FW \$158,646	FW \$158,646	FW \$162,623	FW \$162,623	FW \$162,623
Habitat Action Program...Making more fish naturally – involves development of a series of on-grounds works programs to improve habitat rehabilitation and fish stocks in consultation with the CMAs.	I&I NSW	SW \$200,000 FW \$200,000 \$162,552	SW \$500,000 FW \$200,000 \$166,678	SW \$200,000 FW \$200,000 \$166,678	SW \$200,000 FW \$200,000	SW \$200,000 FW \$200,000
Coastal fish habitat protection and management – this position manages fisheries habitat protection issues, threatened species management and seeks opportunities to actively enhance recreational fisheries and fishing access where possible via development assessment, land use and natural resource management planning processes.	I&I NSW					

*Note: Funding details for each project represent budgets, which may include carryover funds from previous financial years.

Platform: Research on fish and recreational fishing

Saltwater Trust

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Scientific data collection from recreational fishing tournaments in NSW – aims to sample the catch and effort from Basscatch and other freshwater native fish events and club-based gamefishing in NSW in support of the assessment of billfish, tuna and sharks and freshwater native fish.	I&I NSW	SW \$80,359 FW \$34,439	SW \$86,422 FW \$37,038	SW \$151,426 FW \$37,857	SW \$161,074 FW \$40,268	SW \$175,852 FW \$43,963
Improving survival of released fish after catch and release – involves research to develop fishing gears and practices that improve the survival of released fish in saltwater.	I&I NSW	\$126,903 Phase 2 \$88,700 Phase 3	\$181,300	\$198,100	\$240,900	
Gamefish tagging - provides valuable scientific information on the movement and growth of billfish, tuna, sharks and sportfish and encourages anglers to participate in fisheries management and research.	I&I NSW	\$120,000	\$124,330	\$129,020	\$133,590	\$136,910
Enhancing recreational fisheries through conservation of iconic recreational trophy fish – this project aims to create a spatial model for the presence, distribution and movements of mulloway, bream and flathead in 4 estuaries.	University of NSW		\$133,000	\$70,300	\$35,900	
Examination of recreational fishing fatalities in NSW 2002 to 2007- aims to identify, describe and compare all fishing related drowning deaths in NSW.	Royal Life Saving Society	\$67,000				
Development of cost-effective methods for monitoring and assessing spatial management options for recreational fisheries in NSW – this project is using cutting edge technology to develop a cost effective way of monitoring recreational boat-based fishing effort over large geographical scales and development of a GIS system for integrating habitat distributions within the Greater Sydney Region.	I&I NSW		\$75,000	\$75,000	\$75,000	
Artificial Reefs Monitoring Program – this program involves the monitoring of Artificial Reefs and communication of the results to the scientific community and the angling public.	I&I NSW	\$165,659	\$164,556 Phase 1 \$82,234 Phase 2	\$276,880	\$268,798	\$265,698
Monitoring and research of landed fish and game fishing tournaments in NSW – this project organises, coordinates and reports on biological research and sampling at NSW game fishing tournaments.	Pepperell Research & Consulting	\$25,500	\$25,500			
Investigating the behavioural response to grey nurse sharks to recreational lure and baited lines - examines the interactions between particular fishing methods and the species.	I&I NSW	\$228,570	\$185,946	\$28,146		
Recreational fishing in the Shoalhaven Region: optimising survey methods and assessing sustainability – involves an investigation of recreational fishing by carrying out surveys in the Shoalhaven River, using student scholarships and regional workshops.	University of Wollongong	\$78,775	\$92,000	\$81,650		

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Predicting hazardous conditions for rock fishers – investigation of wave group behaviour to educate and ward the fishing community of potentially hazardous fishing conditions.	University of NSW	\$39,000				
Recreational fishing and fishery independent surveys in the Hawkesbury Shelf Bioregion (additional funding) – obtains detailed information on the catch and effort of anglers in the region.	I&I NSW	\$350,000				
Australian salmon: Population structure, reproduction, diet and composition of commercial and recreational catches in NSW - provides information on the current population structure of salmon along the NSW coast.	I&I NSW	\$28,792				
Environmental impacts and techniques for stocking the eastern king prawn into recruitment limited recreational fishing havens – involves monitoring the growth, mortality and consumption of stocked prawns in two far south coast estuaries (Back and Wallagoot Lakes).	University of NSW	\$83,796				
Enhancing recreational fisheries through responsible stocking of mulloway – involves pilot stockings of mulloway fingerlings in Botany Bay and 3 North Coast estuaries.	University of NSW	\$52,509				
Biology and fishery of estuary perch in coastal catchments in NSW – investigating biology and fishery of the estuary perch in coastal rivers.	University of Wollongong	\$33,315				
Growth and reproduction of striped marlin – an investigation of important life history parameters for this iconic recreational species.	Charles Sturt University	\$4,550				
Production of scientific review – scientific appraisal of the Torn Blue Fringe with respect to recreational fishing.	Emerald Lagoon	\$30,000				
Evaluating the recreational fisheries of Recreational Fishing Havens and other key recreationally-fished estuaries in NSW – assessment of long term changes in Recreational Fishing Havens and key recreational fishing species.	I&I NSW		\$139,788	\$146,743		\$75,278
Profiling the biology and fishery of rock blackfish (Girella elevata) in the Sydney Region – investigation of baseline life history information for the management of rock blackfish.	I&I NSW		\$57,615	\$58,699		\$36,826
Movements of key recreational angling species in the Sydney Region – determination of the movements, residence times, habitat interactions and pathways of movements of key recreational fish species in Sydney Harbour.	I&I NSW		\$50,000			
Assessment of barotraumas and its mitigation measures on the behaviour and survival of offshore species in NSW - investigates the effects of barotrauma on the behaviour and physiology of key recreational fish species in NSW using a range of novel research techniques.	I&I NSW	\$89,914	\$155,616	\$88,891		
The final frontier: Recreational fishing and environmental outcomes of responsible stocking practices for mulloway and Eastern king prawns - continues the final 2 years of monitoring of mulloway and Eastern king prawn stockings in estuaries to determine the effectiveness of the programs.	University of New South Wales	\$109,106	\$110,648			

Freshwater Trust

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Effectiveness of freshwater stockings & recreational freshwater fishing assessments – involves completion of scientific studies on western drainage freshwater fish stockings to develop cost-effective stocking procedures for large-scale releases of fish (Phase 1). Phase 2 involves determining areas to be stocked, optimal stocking sizes and methods, the impacts of stocked fish on resident species, and the effectiveness of size limits on selected fisheries.	I&I NSW	\$184,439 Phase 1	\$190,978 Phase 2	\$204,923	\$218,245	\$228,999
Maximising the post release survival of angler caught native freshwater fish – research to develop fishing gears and practices that improve the survival of released fish in freshwater (Phase 2).	I&I NSW	\$81,900	\$199,900	\$199,300	\$101,500	
Optimised stocking of Australian bass by testing modelled estimates of predator impact – develops a predatory impact model to optimise stocking rates of Australian bass in freshwater impoundments.	University of NSW	\$50,427	\$52,251			
Enhancing Australian bass populations in the Clarence River through increased knowledge of their biology – investigates life history characteristics of a local bass population in the Clarence River which will provide specific information for management of the species in that catchment.	I&I NSW	\$10,000	\$10,000			
Rescue and protection of Macquarie perch from Upper Lachlan River system and investigations into captive breeding techniques - will ensure the preservation of Macquarie perch from the Lachlan river catchment by removing a representative portion of the population to secure refuge. Also investigates captive breeding techniques of Macquarie perch	I&I NSW	\$25,570	\$26,190			
Recovering recreational fisheries for freshwater catfish in the Murray-Darling Basin – determines patterns of population structure in freshwater catfish and identifies suitable reintroduction sites within the Murray-Darling catchment.	I&I NSW	\$133,610				
Spawning sites and reproductive behaviour of Murray cod in upland and lowland riverine habitats in the northern Murray-Darling River System.	I&I NSW		\$50,000			
A longitudinal study of nodavirus infection in Australian bass – sampling a batch of Nodavirus positive fish at regular intervals until they reach sexual maturity to determine whether and how the virus is passed onto the progeny of that batch.	I&I NSW		\$19,200	\$20,450	\$22,500	
Evaluation of the status of nodavirus-carrying Australian bass in NSW waterways – investigation of the incidence of Nodavirus in wild juvenile Australian bass populations and a review of the testing of Nodavirus in bass hatcheries based on the results.	I&I NSW		\$63,150			

*Note: Funding details for each project represent budgets, which may include carryover funds from previous financial years.

Platform: Enforcement of fishing rules

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Coastal recreational mobile squads (enhancement activities) - three fisheries officers conduct a range of activities to enhance voluntary compliance with fishing rules by providing advisory and education services and creating effective deterrence to illegal activity by undertaking patrols and enforcement operations.	I&I NSW	SW \$414,577	SW \$428,024	SW \$442,008	SW \$456,552	SW \$471,678
9 Coastal Fisheries Officers (fee compliance) – this contribution of 9 coastal Officers ensures compliance with the requirement to pay the recreational fishing fee. This program complements the other Fisheries Officers funded by I&I NSW and other sources.	I&I NSW	SW \$1,053,476	SW \$1,053,476	SW \$1,053,476	SW \$1,053,476	SW \$1,053,476
6 Inland Fisheries Officers (enhancement activities) - six inland fisheries officers conduct a range of activities to enhance voluntary compliance with fishing rules by providing advisory and education services and creating effective deterrence to illegal activity by undertaking patrols and enforcement operations	I&I NSW	FW \$700,824	FW \$727,717	FW \$755,685	FW \$874,773	FW \$815,026

*Note: Funding details for each project represent budgets, which may include carryover funds from previous financial years.

Platform: Recreational fishing education

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Recreational Fishing Promotion and Event Management – involves working with fishing tournament organisers and the community to promote events that operate in a safe and environmentally and socially responsible way. This also includes implementing codes of practice for recreational fishing in NSW.	I&I NSW	SW \$108,110 FW \$27,030	SW \$109,780 FW \$27,440	SW \$109,780 FW \$27,440	SW \$109,780 FW \$27,440	SW \$115,760 FW \$28,940
Fishcare Volunteers – this is the flagship program of the Trusts. Over 300 trained volunteers are involved in face to face education with anglers to help them to be familiar with fishing rules and to promote responsible fishing practices.	I&I NSW	SW \$620,201 FW \$175,771	SW \$594,100 FW \$169,500	SW \$595,200 FW \$170,000	SW \$595,200 FW \$170,000	SW \$595,200 FW \$170,000
Get hooked...its fun to fish - this schools education program is designed to teach children at an early age about the importance of aquatic habitats and to introduce them to safe and responsible fishing practices.	I&I NSW	\$435,500	SW \$364,600 FW \$40,000	SW \$386,000 FW \$38,000	SW \$361,000 FW \$40,000	SW \$396,000 FW \$39,000
Recreational fishing awareness raising - provides information on fishing rules to anglers and encourages responsible and sustainable fishing practices through a range of media (newspaper, magazines, radio, billboards) at peak fishing periods.	I&I NSW	SW \$35,000 FW \$15,000	SW \$35,000 FW \$15,000	SW \$35,000 FW \$15,000	SW \$35,000 FW \$15,000	SW \$35,000 FW \$15,000
Fishing workshops – a series of fishing workshops for children are held in Sydney, at Government hatcheries and across regional NSW, including workshops for special needs groups and NESB communities.	I&I NSW	SW \$36,250 FW \$19,750	SW \$36,250 FW \$19,750	SW \$36,310 FW \$19,780	SW \$36,310 FW \$19,780	SW \$36,310 FW \$19,780
Recreational Fishing Guides – 300,000 Freshwater and saltwater fishing guides are produced each year to help recreational anglers identify their catch and summarise the fishing rules.	I&I NSW	SW \$100,000 FW \$40,000	SW \$100,000 FW \$40,000	SW \$100,000 FW \$40,000	SW \$100,000 FW \$40,000	SW \$100,000 FW \$40,000
NSW Future Leaders – capacity development program for the next generation of recreational fishing leaders to contribute in fisheries management.	Recreational Fishing Alliance NSW	\$23,500 SW				
World Recreational Fishing Conference - this conference is held every three years and is a key meeting for exchange on recreational fisheries management issues.	RFS/TEC/ I&I NSW	SW \$17,208				
Recreational fishing information - a range of fishing brochures and stickers are produced every year to help anglers keep up-to-date on the latest fishing rules and good practices. Large print runs are distributed free of charge to anglers.	I&I NSW	SW \$142,500	SW \$142,500	SW \$142,500	SW \$142,500	SW \$142,500

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Recreational Fishing Trusts Promotional Freshwater Fishing Calendar – to produce a recreational fishing trusts calendar promoting recreational fishing rules by running an angler photo competition.	I&I NSW	FW \$15,000				
RFA of NSW Fishing Safety DVD and resource material – involves production of high quality DVD modules on fishing safely in saltwater and freshwater.	RFA NSW	FW \$12,000 SW \$28,000				
Creating recreational fishing aquariums displays that inspire the public about recreational fishing – involves installation of large fish tanks to engage high school students and the public at the Centre.	National Marine Science Centre	SW \$19,750				
RFA rockfishing safety resource folder mailout 2009 to 2011 – production of an additional 15,000 DVD/CDs and 5000 resource folders for distribution to anglers free of charge.	Recreational Fishing Alliance of NSW		SW \$41,750	SW \$4,500	SW \$4,500	
NSW rock fishing safety workshops – to educate non English speaking anglers on safe rockfishing practices using a series of 5 workshops.	Recreational Fishing Alliance of NSW	SW \$33,175				

*Note: Funding details for each project represent budgets, which may include carryover funds from previous financial years.

Platform: Fishing access and facilities

Program	Proponent	Budget			
		2008/09	2009/10	2010/11	2011/12
RFA NSW – NSW Crown Lands and Reserves vesting and securing recreational fishing access for the future - The aim of this project is for the RFANSW to employ the services of a Project Officer to identify existing crown reserves or Crown parcels of land, which could be formed into reserves dedicated for recreational usage such as fishing under the Crown Lands Act.	Recreational fishing Alliance of NSW		SW \$128,695 FW \$55,155 (TBD)		
Coopermook fishing platform with fish cleaning facility, Manning River -The proposed project involves the construction of a fishing platform incorporating fish cleaning facilities on the Lansdowne River Foreshore adjacent to the Coopermook Foreshore Reserve. This project forms part of a larger project which includes improvement of boating facilities in the reserve.	Greater Taree City Council		\$46,185 SW		
Recreational fishing infrastructure grants manager – facilitates the development of quality recreational fishing infrastructure in key locations for use by recreational fishers, identifies key gaps in the availability of existing infrastructure and develops a list of potential works to guide new applications.	I&I NSW	SW \$86,800 FW \$37,200	SW \$113,348 FW \$13,000	SW \$121,559 FW \$13,000	SW \$124,645 FW \$14,000
Recreational fishing access – 2 fisheries managers work closely with government agencies and other landowners to maintain and improve current access to popular local fishing spots.	I&I NSW	SW \$118,000 FW \$127,954	SW \$125,400 FW \$149,059	SW \$133,700 FW \$158,623	SW \$138,145 FW \$159,123
Small grants program - provides seed funding for community groups for recreational fishing infrastructure programs such as fish cleaning tables and fishing platforms.	Community groups/ Councils etc Hornsby Shire Council	SW \$100,000 FW \$60,000	SW \$100,000 FW \$60,000	SW \$100,000 FW \$60,000	SW \$100,000 FW \$60,000
Recreational fishing and habitat map for the Lower Hawkesbury – involves the production of maps that educate and inform recreational fishers on fishing locations and seagrass habitats.	Tweed Coast Holiday Parks Reserve Trust	SW \$12,000			
Installation of fish cleaning tables, measuring stations and signage at 7 Tweed Coast Holiday Parks – construction of quality recreational fishing infrastructure.	Recfish Australia	SW \$28,000			
Annual Membership of Recfish Australia – provides a funding base for Recfish Australia as the peak national recreational fishing body to carry out its role.	Australian Volunteer Coastguard	SW \$35,300			
Erection of replacement radio tower at Swansea with safe access to maintain 24 hour operation for recreational boaters, including recreational fishers.	Newcastle City Council	SW \$25,000			
Accessible fishing platform on Stockton Foreshore for disabled people - this project involves the building of a cantilevered platform which will extend over the rocks enabling people with a disability or those that are elderly the opportunity to fish.	Gosford City Council		SW \$85,250		
Fish cleaning tables and shelters, Gosford area – construction of 13 fish cleaning tables and 6 associated shelters.					

Clifton Gardens jetty rehabilitation works, Mosman – to contribute to the upgrade of Clifton Gardens jetty and promote its use as an angling facility.	Mosman Council	SW \$50,000			
Merimbula public jetty upgrade – to provide a fishing platform with fish cleaning facility, as part of the upgrade to the Merimbula public jetty.	Bega Valley Shire Council	SW \$45,000			
Recreational fishing governance – investigating a framework to provide for improved governance of recreational fishing.	I&I NSW	SW \$150,000			
Angel Rings 2009 to 2011 – continuation of the Angel Rings project which installs and maintains Angel Rings in popular rockfishing locations.	ANSW NSW	SW \$19,250	SW \$20,855	SW \$22,570	
New Handrails for Long Jetty, located at Tuggerah Parade– this will improve accessibility and safety of this iconic fishing spot.	Wyong Shire Council	SW \$11,875			

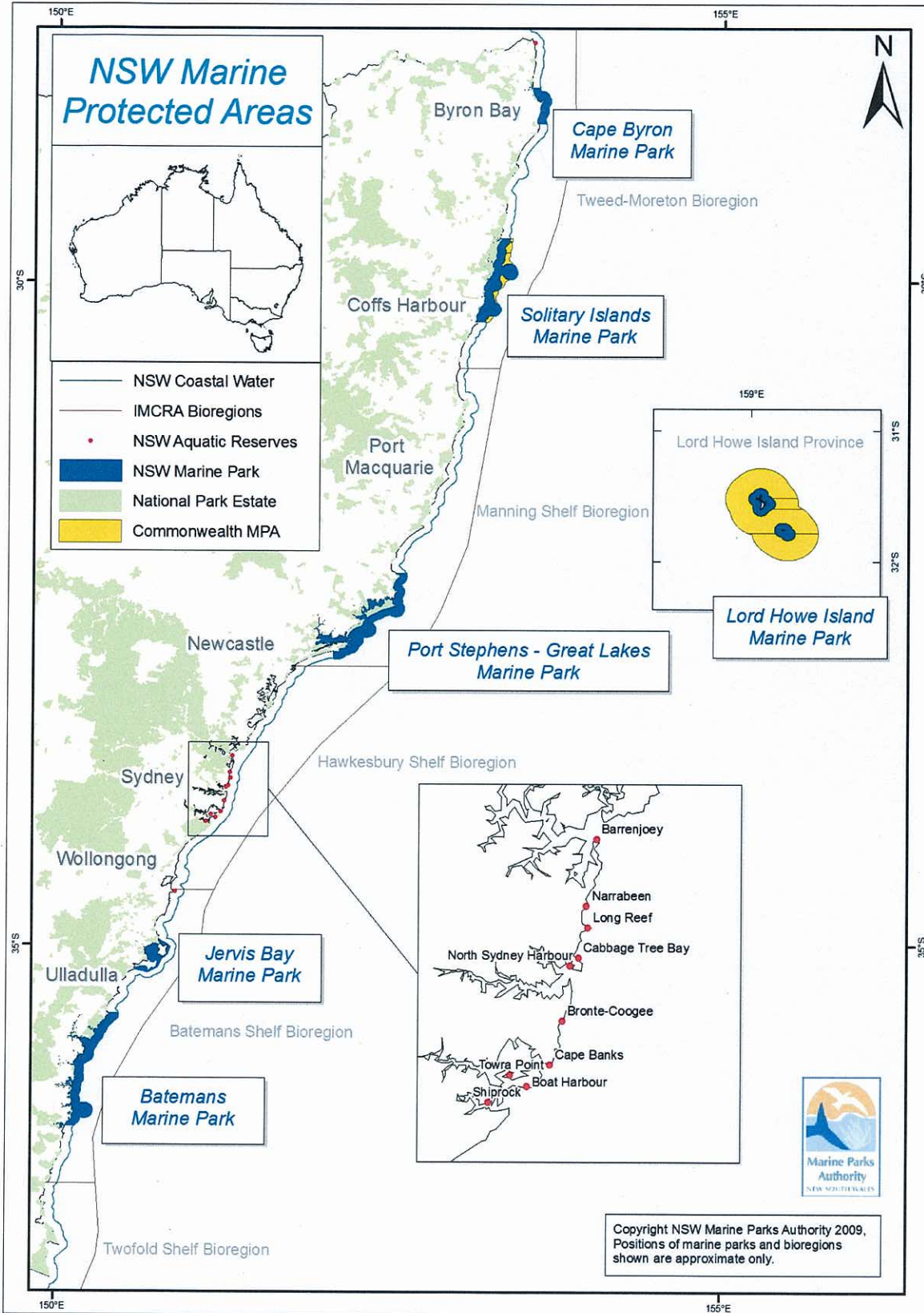
Platform: Fishing fee coordination and payment network (this platform represents fee attributable funding)

Program	Proponent	Budget				
		2008/09	2009/10	2010/11	2011/12	2012/13
Recreational fishing havens – involves repayment of a loan used for the buyout of commercial fishing entitlements to create 30 recreational fishing havens.	I&I NSW	\$2 million	\$2 million	\$2 million	\$2 million	\$2 million
Expenditure Committee meeting expenses – the saltwater and freshwater committees of expert anglers reviews Trust funding applications and ongoing progress of programs.	RFS/TEC/ RFF/TEC/I&I NSW	SW \$35,000 FW \$30,000	SW \$30,000 FW \$30,000	SW \$31,000 FW \$31,000	SW \$32,000 FW \$32,000	SW \$33,000 FW \$33,000
ACoRF meeting expenses – the Advisory Council on Recreational Fishing (ACoRF) provides high quality advice to the Minister for Primary Industries on issues relating to recreational fishing.	ACoRF/I&I NSW	SW \$28,500	SW \$28,500	SW \$29,000	SW \$29,500	SW \$30,000
Recreational fishing fee administration – provides for the convenient payment of the fishing fee at fishing tackle stores, other outlets and via the web and phone, plastic licences and a renewal function.	I&I NSW	SW \$750,000 FW \$300,000	SW \$1,040,000 FW \$300,000	SW \$750,000 FW \$300,000	SW \$750,000 FW \$300,000	SW \$750,000 FW \$300,000
Trust Executive Officer – this position coordinates the Recreational Fishing Trusts and associated projects to ensure quality service delivery, accountability and transparency.	I&I NSW	SW \$150,590	SW \$157,000	SW \$164,000	SW \$164,000	SW \$164,000
Fee research database – this database collects information on the details of fee receipt holders and other demographic information for use in research surveys.	I&I NSW	SW \$63,000 FW \$27,000	SW \$63,000 FW \$27,000	SW \$63,000 FW \$27,000	SW \$63,000 FW \$27,000	SW \$63,000 FW \$27,000
Freshwater Recreational Management – this position coordinates the following Trust programs: Enhanced fish production, \$ for \$ stocking, freshwater grants and expenditure committee coordination.	I&I NSW	FW \$166,000	FW \$166,000	FW \$166,000	FW \$166,000	FW \$166,000
Licence fee renewal facility – enhanced fee renewal service for anglers.	I&I NSW	SW \$115,000 FW \$50,000	SW \$115,000 FW \$50,000	SW \$115,000 FW \$50,000	SW \$115,000 FW \$50,000	SW \$115,000 FW \$50,000

*Note: Funding details for each project represent budgets, which may include carryover funds from previous financial years

Appendix 2

NSW Marine Protected areas bioregional boundaries



Appendix 3

Case study: Creation of Port Stephens–Great Lakes Marine Park

The following case study provides an example of the process followed in the establishment of a new marine park.

Identification and selection

In 2004, the Marine Parks Authority completed a Broadscale Biodiversity Assessment of the Manning Shelf Marine Bioregion. The bioregion extends from north of the Hunter River, at Stockton, to north of Nambucca Heads and includes all estuarine, coastal and offshore waters to the edge of the continental shelf.

The bioregional assessment report describes the broad range of biodiversity found within the bioregion. Based on analysis of the available ecological information and national guidelines, the assessment identified the southern end of the bioregion, between Stockton Beach and Forster as the candidate site for a large multiple-use marine park.

Key ecological features identified for potential inclusion in a marine park included:

- Port Stephens and the Karuah River estuary, including the largest area of mangrove and saltmarsh in NSW and the only tide-dominated drowned river valley in the bioregion;
- Myall Lakes, the largest system of coastal brackish lakes in NSW and the only major example of this ecosystem type in the bioregion;
- Smiths Lake, the largest intermittent lagoon in NSW;
- Wallis Lake, including the largest area of seagrass in the state and the largest example of a wave dominated estuary in the bioregion; and
- the adjacent exposed coast and ocean to at least 3 nautical miles offshore that includes a range of ocean depth zones and the greatest area, number and diversity of mapped island, subtidal reef, intertidal rocky shore and beach habitats in the bioregion.

In July 2005, the Marine Parks Authority completed a study of the Estimated Economic Impact of the proposed Port Stephens-Great Lakes Marine Park on commercial activities, to inform the selection process. The analyses concluded that the economic impacts of the marine park and likely zoning arrangements on the economy of the Port Stephens region were likely to be small, though that did not preclude the possibility that some local communities and some individuals might encounter significant economic impacts. Any impacts would be further reduced by the commercial fishing buyout arrangements that protect the household wealth and consumption expenditure of fishers who left the industry

Declaration

On 1 December 2005, the Port Stephens-Great Lakes Marine Park was declared. It extends from Cape Hawke Surf Life Saving Club near Forster south to Birubi Beach Life Saving Club at the northern end of Stockton Beach and includes offshore waters to the 3 nautical mile limit of state waters. It includes Port Stephens and the Karuah River, the Myall River, Myall and Smiths Lakes and all their creeks and tributaries to the tidal limit.

Zoning plan development

Extensive consultation occurred throughout the development of the zoning plan for Port Stephens–Great Lakes Marine Park. A draft zoning plan was publicly exhibited between June and September 2006. Submissions and community input was considered between October and February 2007. The final zoning plan was gazetted on 2 March 2007 and commenced on 21 April 2007.

Community consultation was conducted in two main stages. The first stage occurred following the announcement of the Marine Park in December 2005 with a community survey that

informed development of the draft zoning plan. The second stage was associated with public exhibition of the draft zoning plan and occurred between June and September 2006.

The local marine park advisory committee included 21 members representing ten stakeholder groups and was involved throughout the development of the zoning plan. It included five recreational fishing representatives (three recreational fishers, one charter fisher and one spearfisher).

Stage 1 – Collection of park use data

In December 2005, a user survey commenced to coincide with the marine park declaration to identify areas of importance and value to recreational and commercial fishing and other park users. Around 50,000 reply paid questionnaires were distributed as inserts in local newspapers within the vicinity of the Park, and directly mailed to fishing clubs, conservation groups, and local Aboriginal land councils. The questionnaires were available at all Visitor Information Centres, NSW Government offices, Port Stephens and Great Lakes local councils, libraries, bait and tackle shops and caravan parks and were provided at information sessions, focus group meetings, and were mailed out on request.

Information was sought from marine park users on the type, frequency and location of their activities in the marine park, what they valued most about the marine park and which areas (such as boat ramps) they used.

Community information sessions were advertised in local papers and on the Marine Parks Authority website. Invitations to focus group meetings were mailed directly to all fishing clubs, bait and tackle stores, conservation groups, tour operators, commercial fishers, Aboriginal communities and land councils, charter fishing operators, spearfishing clubs and groups, local oyster growers, and local boat owners.

At the conclusion of this community consultation, 2,228 questionnaires were returned, and a total of 62 meetings, presentations, focus groups and information sessions held. Information gathered was recorded in a database and a geographical information system to enable mapping of area based information. A series of draft zoning options that represented all major habitat types in sanctuary zones was presented to the local advisory committee and extensively workshopped to develop a draft zoning plan for public exhibition.

Stage 2 – Public exhibition of draft zoning plan

The draft zoning plan for Port Stephens–Great Lakes Marine Park was publicly exhibited between 23 June and 23 September 2006.

Media releases, telephone surveys, advertising, public displays and information stalls were used to publicise exhibition of the draft zoning plan, and encourage participation in meetings and submissions.

Around 43,000 draft zoning plan brochures were distributed to, government and local council offices, regional libraries, regional visitor information centres, bait and tackle stores, local stores in more remote locations, caravan parks and scuba diving centres.

Open information sessions were held throughout the marine park and adjacent areas. All sessions were advertised in local newspapers and regional daily publications. Attendance at the evening sessions was highest, averaging over 50 attendees at each.

Focus group meetings were held with primary stakeholder groups, such as commercial and recreational fishers, aquaculture, boating, conservation, marine science, commercial operators and tourism. In addition, many community groups and clubs requested presentations on the draft zoning plan. Such requests came from fishing clubs, professional groups, environment organisations and local community precincts. In total, 75 separate meetings were held with individuals and stakeholder groups (totalling 137 meetings over the course of the planning process).

A submission form was incorporated into the draft zoning plan brochure and could also be accessed and completed via the Marine Parks Authority's website. A total of 4,399 submissions

were received. Based on submissions the main interests identified were recreational fishing (52 per cent): conservation (46 per cent), scuba diving (19 per cent) and spearfishing (10 per cent),

Final zoning plan

The final zoning plan was gazetted on 2 March 2007 with many changes made to the draft as a result of public consultation. At the local level the following changes were made to improve recreational fishing access and respond to concerns:

- the Pinnacle area was modified to ensure access to a key site for land-based game fishing off rocky headland on the northern boundary;
- Smiths Lake sanctuary was reduced to allow greater area available for recreational fishing;
- boundaries of the Seal Rocks sanctuary zone were modified, improving areas for boat-based recreational fishing, with access to Skeleton Rocks and Belmona Reef. Also, the new alignment ensured that the entirety of Sawtooth Rocks were available to recreational fishers;
- improvement was made to ensure access to areas adjacent to the boat launching area and jetty in Boolambayte Lake;
- enhanced fishing opportunities were catered for between Broughton Island and North Rock, including enhanced access on the southern side of island where the boundary was adjusted to include an important rocky outcrop fishing site;
- changes to the arrangements for recreational fishing on the northern and southern sides of Fingal Island for protection from southerly winds; and
- at Little Beach, boundaries were modified to allow fishing from the jetty, in particular supporting local caravan park patrons.

Impact of the final zoning plan on recreational fishing

About 82.5 per cent of the marine park is accessible for recreational fishing under the zoning plan. Sanctuary zones make up approximately 17.5 per cent of the marine park and represent known major habitat types found in the marine park and the bioregion.

Overlaying the fishing intensity data and the final marine park zoning plan indicates that approximately 74 per cent of the highest intensity fishing sites and 82 per cent of high level fishing sites remained in habitat protection and general use zones where recreational fishing can occur. Also significant was that 88 per cent of moderate intensity fishing grounds also remained accessible to recreational fishing.

This analysis demonstrates that many key recreational fishing sites that have been intensively used by recreational fishers are not located within sanctuary zones, contrary to some claims. Rather, sanctuary zones include a mix of predominantly lower intensity recreational fishing sites, but also some key recreational fishing sites, as is necessary to achieve biodiversity conservation objectives.

Implementation

The Port Stephens-Great Lakes Marine Park zoning plan commenced on 21 April 2007. A communication strategy was developed to inform and educate the community about the new zoning plan and support implementation. Publication and distribution of zoning plan user guides, installation of key signage, including zone boundary identification signage, and extensive local print and radio media, occurred both prior to and following commencement of the zoning plan.

Other initiatives that supported implementation included the installation of Interpretative shelters to provide park and zoning plan information, revision of the Marine Parks Authority's website, and a tourism and promotional display in local visitor centres.

Existing commercial operator permits were given 12 months transitional period to apply for permits to operate in the marine park. The zoning plan enforcement strategy focused on education and information over enforcement action. For example, zoning plans user guides and verbal warnings were issued between April and October 2007 with written cautions.

Penalty notices were issued for offences in the Fly Point sanctuary zone, as this had been previously protected from fishing for 20 years within the former Fly Point Halifax Park Aquatic Reserve and for second offences following warnings for the same offence; or blatant or intentional non-compliance.

The zoning plan will be reviewed, commencing in 2012 to determine whether it continues to meet the objects of the *Marine Parks Act 1997*.

Appendix 4

Targeted research

The NSW Government has a comprehensive science and research program to inform how we conserve and manage NSW's aquatic resources and improve knowledge of aquatic ecosystems. Some of the key research programs targeted to recreational fisheries management are outlined below:

Maximising the survival of key species released by recreational fishers in NSW

Although many fishers retain fish they catch for consumption, sport fishing by many fishers combined with size and bag limits means large numbers of fish are returned to the water alive. To ensure the sustainability of recreational fishing practices, it is beneficial for most of the released fish to survive with minimal impacts. This research program commenced in 2004 to estimate survival rates, and key factors contributing towards the mortality of a range of popular recreational species after release from capture by recreational fishers. Practices and techniques which improve survival of released fish and invertebrates have been developed and guidelines produced for recreational fishers. A brochure promoting the use of these techniques is widely distributed by the NSW Government. This project is jointly funded by the Recreational Fishing Trust and the NSW Government.

Table: Estimated survival rates of recreational species following release and the identified main factors which reduce survival of angler caught fish

Species	% survival after release	Main factors for reduced survival
Yellowfin Bream	72-97	Deep hooking
Mulloway	73-81	Deep hooking and poor handling
Sand Whiting	93	Deep hooking
Snapper	67	Deep hooking and poor handling
Silver Trevally	63-98	Excessive time in poorly designed live wells
Dusky Flathead	96	Poor handling and sub-optimal live well water quality
Luderick	99	Poor handling
Tailor	92	Deep hooking
Australian Bass	92-100	Deep hooking
Golden Perch	73-100	Poor handling, sub-optimal live well conditions and high water temperatures
Murray Cod	85	Deep hooking, excessive handling, sub optimal live well conditions

Biology of key recreational fish species

There is a wide variety of fish species caught by recreational fishers. For some of these species, very little is known about their biology and life history characteristics. Information such as age and growth, reproduction, population structure and movements is essential for resource assessment and fisheries management planning to ensure sustainable fishing. Research is underway or has been recently completed for the following species in NSW:

- Estuary Perch;
- Striped Marlin;

- Luderick;
- Black Bream and Tarwhine;
- Rock Blackfish (Drummer);
- Eastern Blue-spotted Flathead, Tiger Flathead and Dusky Flathead;
- Australian Salmon;
- Yellowtail Scad and Slimy Mackerel;
- Pearl Perch;
- Mulloway;
- Yellowtail Kingfish; and
- Snapper.

Recreational fishing surveys

Recreational fishing surveys provide for an assessment of the recreational catch and fishing effort, which is used to establish recreational fishing catch trends over time. State-wide surveys provide snapshots of total catch and effort across NSW, while regional surveys provide more detailed information at a local level. Both types of surveys provide important baseline measures of the usage patterns and quality of recreational fishing. Current projects include:

- Greater Sydney region – the NSW Government has collected site specific, recreational fishing catch and effort data within the Hawkesbury Shelf Bioregion over a two year period. This project is jointly funded by the Recreational Fishing Trust and the NSW Government;
- NSW estuaries, including recreational fishing havens – a new research program is expected to commence in 2010 involving a combination of fisher catch surveys and fishery independent sampling (independent of recreational fishers) to survey fish populations in selected estuaries. Surveys independent of fishers are useful because information is collected on the broader ecosystem and biodiversity. Fisher catch (creel) surveys are representative of targeted fishing carried out by recreational fishers. This project is jointly funded by the Recreational Fishing Trust and the NSW Government; and
- Fishing competition monitoring program – the NSW Government is collecting recreational fishing catch and effort data at selected fishing competitions, including bass and gamefishing competitions, to establish catch trends over time. This project is funded by the Recreational Fishing Trust.

Threatened species research

The NSW Government conducts research related to the recovery of native fish listed as threatened under the *Fisheries Management Act 1994*. Some of these species were previously caught by recreational fishers, however, these fish populations have since declined for various reasons. For example, a program is underway to establish breeding techniques for Macquarie Perch to assist in the development of a conservation stocking program. This program is jointly funded by the NSW Government and the Recreational Fishing Trusts.

The NSW Government has also invested significantly in Grey Nurse Shark research to estimate the remaining population of the species, to develop an artificial breeding program and assess the impacts of fishing interactions, particularly with different forms of fishing gear, on the health of Grey Nurse Sharks.

Appendix 5

Fisheries compliance

The general role of fisheries officers and marine park rangers

Fisheries officers and marine park rangers play a key role in optimising compliance with fisheries laws established by the *Fisheries Management Act 1994*, Marine Parks legislation and Commonwealth legislation relating to fisheries and the environment.

The compliance strategies used draw from the model developed under the Australian Fisheries National Compliance Strategy 2005-10. These strategies seek to achieve the 'optimal level of compliance' in any given fishery or with natural resources management as a whole. The 'optimal level of compliance' is defined as:

"That which holds the level of non-compliance at an acceptable level, which can be maintained at a reasonable cost for compliance/enforcement services, while not compromising the integrity and sustainability of the resource."

Fisheries officer compliance zones

There are seven fisheries zones across inland and coastal NSW, each managed by a Senior fisheries officer, and comprising of 25 district fisheries offices. The zones and districts make up the general operations component of the workgroup.

Fisheries Compliance also includes two other discrete workgroups, the Statewide Operations and Investigations Group (SOIG) and the Conservation and Aquaculture Group (CAG). The SOIG operates across NSW and investigates organised fisheries crime in high value fisheries, illegal fishing for commercial gain, the post harvest sector and recreational fisheries programs. The CAG focuses on conservation, habitat, threatened species and aquaculture programs.

Functional programs and compliance plans

There are five recognised functional (fishery) programs to which Fisheries Compliance provides services, namely Recreational Fisheries, Commercial Fisheries, Aquaculture, Conservation and the Targeted Offences Program. Each of these functional programs has sub-programs. There are five Recreational Fishery sub-programs (Marine, Freshwater, Charter, Abalone and Lobster) and 29 fishery sub-programs in total.

Operational plans are used to address compliance issues in one or more functional programs and are developed to deliver tactical responses (responding to an immediate threat of non-compliance) or strategic responses (developed using intelligence to address a persistent or emerging compliance problem).

Resources are allocated in a strategic manner, based on localised and state-wide fisheries compliance risks. Districts with high levels of recreational fisheries activity are allocated a larger proportion of time to Recreational Fishery Program duties than a district where recreational fishing features less prominently.

Fisheries officers perform a range of regulatory functions, including issuing cautions or penalty notices for minor fisheries offences and the preparation of offence reports for serious offences. Officers conduct, or participate in, investigations and special operations to detect fisheries crimes and are required to attend court to give evidence in relation to fisheries offences.

Education and advisory duties are important in promoting and maintaining voluntary compliance and include distributing and explaining education material and responding to enquiries from the public and other agencies. Officers also give talks and presentations to fishing clubs, schools and community groups and organise events such as fishing clinics and advisory stands at trade shows and field days.

Appendix 6

Fish stocking

Freshwater fish stocking

There are three freshwater fish stocking programs undertaken by the NSW Government, which are outlined in the submission:

- trout and salmon stocking;
- stocking of native fish in impoundments; and
- dollar-for-dollar native fish stocking.

The numbers of fish stocked each year are detailed below. Production of fingerlings at the hatcheries varies between years, depending on drought conditions and annual stocking plans.

Table: Total number of Trout and Salmon stocked from Gaden and Dutton Trout Hatcheries.

Year	Number
2004/05	4,245,654
2005/06	3,921,400
2006/07	3,347,550
2007/08	2,992,441
2008/09	3,050,842

Table: Total number of native fish stocked from NSW government hatcheries in impoundments.

Year	Number
2004/05	2,723,200
2005/06	2,702,411
2006/07	1,418,961
2007/08	2,460,698
2008/09	832,280

Table: Total of native fish stockings under the Dollar for dollar native fish stocking program.

Year	Number
2004/05	866,353
2005/06	923,682
2006/07	907,515
2007/08	826,082
2008/09	1,154,878

Marine fish stocking

The numbers of Mulloway and Eastern King Prawns stocked each year, as part of the research stockings trials outlined in this submission, are detailed below.

Table: Numbers and locations of stocked Mulloway

Year	Number of fingerlings	Location
2003	54,000	Botany Bay
2004	24,000	Botany Bay
2006	14,000	Botany Bay
2007	6,000	Botany Bay

2009	17,000	Botany Bay
2006	20,000	Manning River
2007	4,500	Manning River
2008	6,000	Manning River
2007	17,000	Richmond River
2008	10,000	Richmond River
2006	6,500	Tweed River
2007	13,000	Tweed River
2008	10,000	Tweed River

Table: Numbers and locations of stocked Eastern King Prawns

Year	Number of post larval prawns	Location
2006	900,000	Back Lake
2007	900,000	Back Lake
2006	3,100,000	Wallagoot Lake
2007	2,600,000	Wallagoot Lake
2008	2,900,000	Wallagoot Lake

The Mulloway research stocking trials were set up in 2003, in collaboration with the University of NSW to investigate survival and dispersal of stocked Mulloway fingerlings, monitor habitat usage and predatory impact of the released fish and determine the most appropriate stocking density and size of fingerlings to minimise ecological impacts.

Key outcomes of the research include:

- stocked Mulloway grew up to 1mm per day as juveniles, which was similar to wild growth rates;
- stocking rates must be based on available habitat and diet requirements of Mulloway to minimise ecological impacts;
- mulloway are good candidates for stocking due to fast growth and tolerance of a wide range of salinity and temperature; and
- preliminary results of genetic monitoring of stocked fingerlings indicated that up to 16 per cent of Mulloway caught by recreational fishers in the Georges River and Botany Bay were stocked fish (in that age range).

The research stocking trials were extended to Eastern King Prawns in 2007 and a series of stockings have been undertaken in Wallagoot and Back Lakes on the south coast.

Key outcomes of the research include:

- the survival rate of post larval Eastern King Prawns stocked in coastal lakes was approximately four per cent;
- the releases of prawns in Wallagoot Lake contributed an estimated 10 tonnes of prawns to the recreational fishery;
- hatchery reared Eastern King Prawns were not more vulnerable to predation mortality than wild prawns; and
- there were no detectable adverse effects of releasing Eastern King Prawns on seagrass assemblages in Wallagoot Lake.

Appendix 7

Recreational fishing havens

Descriptions of the 30 recreational fishing havens along the NSW coast are provided below:

Area	Details
Tweed River	Closed downstream from Boyd's Bay Bridge and from south of Rocky Point east to Fingal Road. Wommin Lake, Wommin Lagoon and six canal estates beyond that area is also closed (i.e. Seagulls Canal, Tweed West Canals, Blue Water Canals, Crystal Waters Canal, Endless Summer Canal Estate, Oxley Cove).
Richmond River	Closed downstream from a line drawn east across the Richmond River from the south eastern corner of portion 21 which is the river end of Emigrant Point Lane beside the flood gate. Crab trapping and eel trapping continues to be permitted in the river and Emigrant creek upstream from the Burns Point ferry.
Clarence River	The following areas are closed 1) Middle Wall - a 2 kilometre stretch at the Clarence River mouth near Yamba (hauling during the mullet travelling season - April to August - is still permitted in this area). 2) Romiaka Bridge - waters adjacent to the Romiaka Channel Road Bridge, just outside Yamba. 3) Oyster Channel Bridge - waters adjacent to Oyster Channel Road Bridge, near Yamba. 4) Entrance of Saltwater Inlet - a 300 metre stretch of River on the eastern side of North Arm, between Arris Island and Saltwater Inlet, near Iluka.
Bellinger River (including Kalang River)	Completely closed.
Deep Creek	Completely closed.
Hastings River	Completely closed.
Camden Haven River	Closed downstream from Dunbogan Bridge and North Haven Bridge (including Gogleys lagoon).
Manning River	Closed downstream from Ghinni Ghinni and Berady Creek (including Scotts Creek).
Lake Macquarie	Completely closed.
Botany Bay	Closed with the exception of abalone gathering and rock lobster trapping. Note - Abalone gathering is currently prohibited - see the closure notice.
St Georges Basin	Completely closed.
Lake Conjola	Completely closed.
Narrawallee Inlet	Completely closed.
Burrill Lake	Completely closed.
Lake Tabourie	Completely closed.
Meroo Lake	Completely closed.
Tomaga River	Completely closed.
Tuross Lake (including Tuross River and Borang	Completely closed.

Lake)	
Lake Brunderee	Completely closed.
Dalmeny Lake (also known as Mummaga Lake)	Completely closed.
Little Lake (also known as Little Tilba Lake and Hoyers Lake)	Completely closed.
Bermagui River	Completely closed.
Nelson Lake (Nelson Lagoon)	Completely closed.
Bega River	Completely closed.
Back Lake (Back Lagoon)	Completely closed.
Pambula River	Completely closed.
Yowaka River	Completely closed.
Nullica River	Completely closed.
Towamba River (also known as Kiah River)	Completely closed.
Wonboyn Lake, River and Wonboyn Beach (to 500 metres from mean high water level)	Completely closed.

Note: The closed waters also include all bays, tributaries, creeks, canals and artificial lakes within that area.

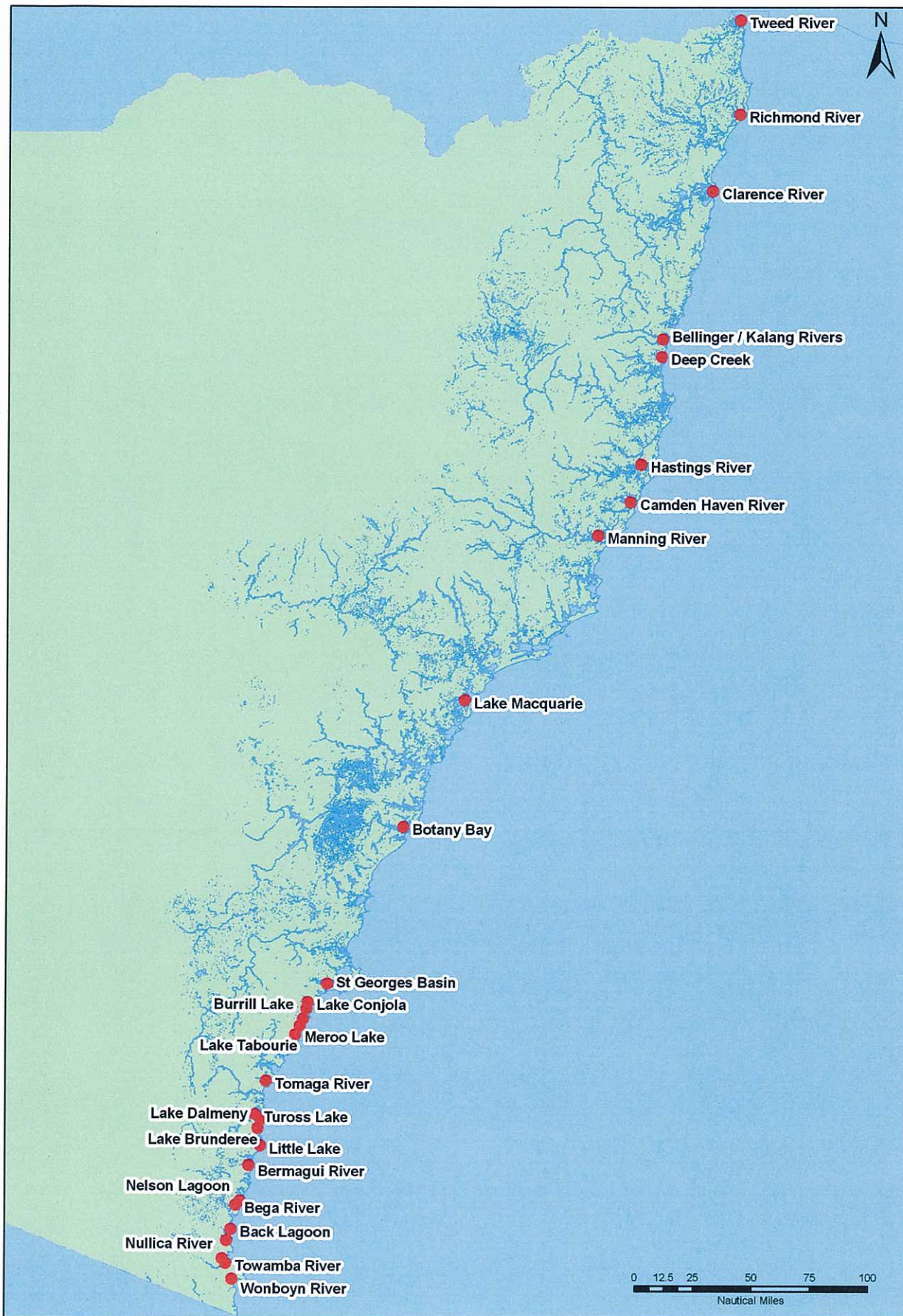


Figure: Map of recreational fishing havens

The buyout process

Estuarine areas along the NSW coast were selected as recreational fishing havens following a comprehensive community consultation process, involving all relevant stakeholders, in 2001 and 2002.

Commercial fishers that were affected were made a monetary offer to surrender their commercial fishing entitlements. The offers were calculated from the history of the fishing business, or in some cases, the estimated market value. A total of 251 fishing businesses were purchased through the buy out process.

Table: Buyout expenditure and number of businesses in each region of the Estuary General Commercial Fishery

Estuary General Region	Total amount	Number of businesses
1	\$ 1,932,000	18
2	\$ 499,000	8
3	\$ 2,253,000	28
4	\$ 5,668,000	68
5	\$ 4,127,000	81
6	\$ 3,198,000	35
7	\$ 869,000	13
Total	\$18,546,000	251

*the total amount includes purchases of fishing entitlements, accelerated depreciation and relocation and retraining claims.