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Ms. Melinda Cilento
Commissioner
Marine Fisheries and Aquaculture
Productivity Commission
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Dear Ms. Cilento

Productivity Commission Review: Marine Fisheries and Aquaculture

Thank you for the opportunity to submit comments to the Productivity Commission Review into the Regulation of Marine Fisheries and Aquaculture. WWF and TRAFFIC welcome this inquiry and note that the Terms of Reference state that the primary focus of the review is on Commonwealth, State and territory regulation of wild capture marine fisheries. We have focused our submission accordingly.

We are pleased to see that a primary focus is to improve fisheries regulation without compromising fisheries policy and environmental objectives. The latter point is fundamental; while the pursuit of environmental objectives may sometimes add costs, a productive and profitable fishery sector[1] relies on healthy marine ecosystems. Within the bounds of sound ecological sustainability, we support the pursuit of the most efficient and effective regulation of fisheries.

Our submission is structured in three parts:

- High level summary of WWF and TRAFFIC's position on each of the Review Term of Reference (TOR);
- Some general observations about contemporary fisheries management, as it is important to understand the value and function of regulations in order to make informed decisions about modifying them; and
- Detailed comment on Review TOR.

High level summary of WWF and TRAFFIC's position

TOR 1. The extent to which enhanced and improved use of cross jurisdiction and multi-jurisdictional regulatory regimes, information and service sharing can improve the economic efficiency and the ecologically sustainable use and management of fisheries resources. WWF strongly supports cross and multi-jurisdictional regulatory regimes to enhance the regulatory efficiency of Australia's fisheries, and to promote greater opportunities for integrated "seascape" wide management of marine resources within a multiple use marine planning framework.

TOR 2. The extent to which harmonisation or integration of environmental, management and compliance arrangements could improve the effective and efficient operation of the fishing industry and delivery of fisheries policy and environmental outcomes. WWF strongly supports the management of marine fisheries within a multiple use marine

[1] Throughout this document we use the term "fisheries sector" to encompass commercial fishing, recreational fishing, Indigenous fishing and aquaculture.

planning framework as a mechanism to improve the operations of the fishing industry by integrating fisheries policy within broader marine policy development to delivery improved environmental outcomes.

TOR 3. The extent to which accreditation schemes or recognition of equivalency could reduce the regulatory burden and increase productivity. WWF strongly supports the use of iSEAL accredited third party accreditation schemes like Marine Stewardship Council (MSC) and Aquaculture Stewardship Council (ASC) as appropriate mechanisms to reduce regulator burden for the fishing industry and to provide the general community with an independent assessment of sustainability of their seafood.

TOR 4. The extent to which greater use of cost recovery arrangements is applicable and informs the cost of delivering fishery production, conservation and other community service obligations. WWF strongly supports the adoption of standard approaches towards implementation of consistent levels of costs recovery of fisheries management arrangements as a mechanism to reduce perverse market subsidies and as an approach to encourage greater industry involvement in the management planning process (greater involvement in research) and enforcement (adoption of new vessel tracking and reporting processes).

TOR 5. The extent to which fisheries management regimes align with and protect the interests of the wider community (in particular, the balance between commercial, recreational, indigenous fishing and conservation interests, and consumers' interests). WWF strongly supports the adoption of ecosystem based fisheries management arrangements, supported by strong legislation that has a primary focus on the sustainability of marine communities, with clear guidance based on the precautionary approach, to ensure future generations of Australian's will still have access to the current or improved marine biodiversity values.

TOR 6. The extent to which fisheries management regimes support greater participation of Indigenous Australians, provide incentives to Indigenous communities to manage their fisheries, and incorporate their traditional management practices in the fishing industry. WWF strongly supports greater opportunities for Indigenous Australian's, particularly those in remote and isolated communities, to became more engaged in fishing operations that deliver greater community benefits while maintaining marine resources in harmony with local tradition and customs.

TOR 7. The degree to which cross jurisdictional regulatory arrangements are transparent, accountable, proportionate, consistent, effective and targeted. WWF strongly supports the use of consistent and transparent regulatory arrangements across jurisdictions as a mechanism to reduce regulatory burden and to promote greater sustainability of shared stocks.

TOR 8. The degree to which cost effective and practical non-regulatory mechanisms could be expanded to achieve fisheries management outcomes. WWF strongly supports the use of non-regulatory mechanisms to achieve fisheries management outcomes but highlights these mechanisms are more effective in small, high value fisheries where co-management arrangements can be effectively developed and implemented by industry participants.

Fundamental Principles of Contemporary Fisheries Management

The common marine resource. The oceans are the last great global commons, belonging to everyone (or to nation states) but owned by no one in particular. As such, fisheries pose significant economic and governance challenges for policy makers. Worldwide experience and many studies have shown that poorly or unregulated fisheries suffer from overfishing, over-capitalization, falling or negative profitability, data-deficiency, and declining productivity, leading

to intense pressure on target stocks, excessive by-catch, species loss and degraded ecosystems.

This occurs because unregulated fishers compete with each other and have an incentive to catch as much fish as they can, before their competitors take these fish. The actions of each individual fisher create additional costs to other fishers. The result of this open access fishing, which is economically rational at the individual level, is additional costs, excessive fishing effort, reduced average profitability and over exploitation at the collective level. This is famously known as the 'tragedy of the commons'[2]. In addition, unregulated fishers are likely to neglect environmental externalities, such as by-catch of non-target and/or non-marketed species, even though these impacts ultimately rebound on fisheries productivity[3].

Government intervention in fisheries management is economically justified in order to address the twin problems of open-access exploitation and environmental externalities. Given the nature of the resource, and the way fishers respond to the incentives they face, self-management by participants is almost always inefficient. Hence regulation is the cornerstone of effective contemporary fisheries management.

Ecosystem based fisheries management. Contemporary fisheries management recognizes that the goals of sustainable management extend beyond the management of target fish stocks. Ecosystem Based Fisheries Management (EBFM) takes into account the impacts of fishing on target, non-target, other dependent species, threatened and endangered species, and the ecosystems and habitats in which those species occur. EBFM is a generally accepted management framework and should not be considered an 'additional' element to address 'non-commercial' or conservation concerns. In fact, the sustainable management of fisheries is intended to protect the environment for the sake of the community that owns it, and to ensure that fisheries remain viable and productive, which depends in turn on environmental health. Any consideration of the costs of EBFM must be balanced against the significant value that EBFM delivers, not least in terms of the long-term productivity of fish stocks for harvest by present and future generations.

The capacity of any ecosystem to deliver long-term positive economic and social outcomes depends first and foremost on its ecological integrity. While it may be politically or financially expedient to compromise ecological integrity for the sake of economic and social gains in the short term, such benefits will not be sustainable over the longer term. In order to protect marine resources and the communities that depend on them, EBFM objectives should be a cornerstone of all fisheries legislation. Moreover, because of the fundamental importance of ecological integrity to economic productivity, we believe that ecological objectives should be paramount, and that it is inappropriate for political, social or economic considerations to outweigh ecological requirements.

In short, we believe that the Review must acknowledge up front that maintaining and improving ecological integrity is the starting point for any regulatory process aimed at improving the sustainable use and productivity of marine resources.

Commercial gain from a community owned asset. International law provides that resources within 12 nautical miles of the coast belong to Australia. Beyond this point, and up to the edge of the Australian Fishing Zone (AFZ)[4], the global community has ceded marine resources to Australia and as such high standards of management and accountability are expected. The Australian fisheries sector is accessing a community owned resource: in the case of the commercial sector for commercial gain; in the case of the recreational sector for individual pleasure and food (although some elements of this sector also derive commercial gain, e.g.

[2] Hardin, G. (1968) "The Tragedy of the Commons", *Science,* 13 Dec 1968: Vol. 162, Issue 3859, pp. 1243-1248 (DOI: 10.1126/science.162.3859.1243)

[3] Worm, B. et al. (2006) "Impacts of Biodiversity Loss on Ocean Ecosystem Services", *Science,* 03 Nov 2006: Vol. 314, Issue 5800, pp. 787-790 (DOI: 10.1126/science.1132294)

[4] Broadly equivalent to the Australian Exclusive Economic Zone (EEZ), except that the AFZ also covers the waters off Antarctica to which Australia has a claim.

charter fishing); and for Indigenous fishers for cultural reasons as well as food. These different uses and users imply three things:

- Those gaining financially from a community resource should pay a rent for using it;
- Private uses of the resource should not harm this community owned asset; and
- The costs of managing the resource should be covered by those who benefit from their access.

These are important principles to bear in mind when the Commission considers the 'burden' of management.

Increased productivity through fewer boats. One of the aims of this review is to identify opportunities to increase productivity through regulatory reform. In this context, a significant issue is the number of licenses issued in a fishery. In principle, regulators should limit the number of licences issued in a fishery, not only on environmental grounds but also to ensure that the harvest is not shared between such a large group of fishers that individual profits are insufficient to support viable business. This is referenced in the Issues Paper under the section "A productivity context" where the Commission states: *"A productivity increase might be observed in fewer resources being used to produce the same or a greater quantity of output, or using existing resources more creatively to produce higher quality or more valuable goods".*

In some jurisdictions, there have been structural adjustment schemes aimed at addressing excess fishing effort and over-capitalisation, followed by the implementation of management measures that provide better economic signals to operators. As governments (and their agencies) have been largely responsible for this problem (i.e. issuing too many licenses, setting catch limits that are too high, not allocating appropriate quotas) it is often argued that governments (taxpayers) should pay to correct the problem. However, even where this has occurred, there has often been a lack of defined targets (how much effort or capital was to be removed) and limited transparency regarding the use of taxpayer's funds[5].

As a general proposition, we support the need for further reductions in effort and improvements in the economic signals provided to commercial operators. This should not only improve the profitability of the remaining operators, but should also deliver beneficial environmental outcomes. However, where taxpayer's funds are used to achieve this outcome, it is vital that clear targets are set and there is full transparency in the use of these funds. Moreover, our strong preference is for models of reform that require those operators who remain in a fishery to provide significant funding, as they are the main beneficiaries of the restructuring process.

Knowledge gaps and the precautionary principle. There are still very significant gaps in knowledge of Australia's aquatic ecosystems, how the various elements of these ecosystems interact with each other, and how this affects fisheries productivity. These information gaps are not uniform, with some fisheries relatively well studied and others less so; this disparity should be recognised in the Review and must be addressed. Effective monitoring and data collection is essential to inform sound management decisions, leading to more productive fisheries and more beneficial fishing outcomes.

In the absence of better understanding of marine ecosystems, we believe that a precautionary approach is appropriate to guide the management of Australian fisheries. Even when key target species are fished at sustainable levels and interactions with non-target species are rare, fishing can still have significant impacts on populations of endangered species, such as dugong, inshore dolphins, marine turtles and sawfish. The precautionary principle is a fundamental tenant of contemporary environmental management. Most jurisdictions have a requirement for or definition of the precautionary principle in their environmental legislation, however this needs to be applied more consistently. We explore this issue in more detail in TOR point 4 below.

[5] Gunn, J., Fraser, G., Kimball, B. (2010) Review of the Great Barrier Reef Marine Park Structural Adjustment Package. Report June 2010.

This concludes our brief review of general principles and considerations for more sustainable and productive fisheries management. We now turn our attention to specific points in the TOR.

Detailed comment on Review TOR

TOR 1. The extent to which enhanced and improved use of cross jurisdiction and multi-jurisdictional regulatory regimes, information and service sharing can improve the economic efficiency and the ecologically sustainable use and management of fisheries resources.

Too many jurisdictions/management authorities. For the size of the fisheries resources available in the AFZ and from the perspective of efficient management there are too many fisheries management agencies (and too many fishers). This situation means that there are significant economic costs associated with the current management structures. It is important to acknowledge that too many management agencies is a function of our Federation and it would seem, short of governments being prepared to totally cede jurisdiction to the Commonwealth or another State/NT, there is likely to be little change in these arrangements. Having said that, should there be appetite for such vast adjustments, WWF and TRAFFIC would be fully supportive of one agency to manage fish stocks within Australia's EEZ on the proviso that it is committed to sustainable fishery management outcomes.

Cross jurisdictional management of fisheries. WWF and TRAFFIC agree that regulatory simplification, streamlining and consistency of arrangements across jurisdictions and exploring more efficient regulatory models are laudable goals. In particular, we agree that wherever possible single jurisdiction management of stocks is desirable both from an ecological perspective and in seeking to maximize efficiency and reduce unnecessary regulation. There are a number of examples where further rationalization of jurisdiction would reduce the regulatory burden and hopefully improve productivity and ecological outcomes. Some of these include NSW/Commonwealth (trawl); Bass Strait Scallops (three jurisdictions involved); and State/State arrangements (e.g. Snapper).

The national Status of key Australian Fish Stocks (SAFS) reporting process does show Australian fisheries management agencies are maturing to a point where stock status is reported on a stock basis (albeit without any reference to the protected species that are also impacted by fishing activities), which helps promote the need for more timely management interventions when required.

Of course, we see limits to the extent to which greater cross jurisdictional integration might be possible as the current arrangements have evolved over many years to respond to the politics of multiple jurisdictions with very different philosophies and policies when it comes to managing fisheries resources. There have been many attempts over the years to rationalise jurisdictional arrangements, but for a variety of reasons this has not been possible even in the face of overwhelming evidence of the potential benefits. For example, the Bass Strait Scallop where numerous attempts to rationalise management in this fishery across three jurisdictions (Commonwealth, Victoria and Tasmania) for this relatively small fishery have failed.

We hopes that there will be some industry and political will to move toward greater cross jurisdictional fisheries management given the value of this; and expect both fisheries agencies and the fishing industry to provide the Commission with concrete suggestions for improvement. We strongly support the need for further sensible rationalization of jurisdiction between the States/NT and the Commonwealth. Success in this area will no doubt improve fisheries management outcomes, reduce the regulatory burden on fishers and improve productivity.

Streamlining Services. While rationalising cross jurisdictional management arrangements may present some challenges, there is significant immediate opportunities for efficiencies in further streamlining services across jurisdictions, particularly for the commercial fishing sector. There is scope for common platforms to provide monitoring (Vessel Monitoring Systems - VMS), licensing, electronic logbooks (e-logs); electronic monitoring (e-monitoring) and where they are

in use electronic reporting by observers. Such streamlining should not only lead to cost efficiencies but should also reduce the burden of multiple arrangements where fishers operate in more than one jurisdiction. Ultimately also, consolidation of these services will provide an important foundation for more significant collaboration on management arrangements over time.

WWF and TRAFFIC strongly support consolidation and streamlining of these common services which, with rapid advancements of technology, could be provided by external private sector businesses that monitor and provide communication products for other remotely operated activities like mining and regional councils.

TOR 2. The extent to which harmonisation or integration of environmental, management and compliance arrangements could improve the effective and efficient operation of the fishing industry and delivery of fisheries policy and environmental outcomes.

Single National Environmental Regulatory Arrangement. Currently, Commonwealth fisheries are subject to the strategic assessment provisions of Part 10 of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (against the *Guidelines for the Ecologically Sustainable Management of Fisheries* 2007) which requires those fisheries to be assessed in relation to impacts on protected marine species and communities under Part 13 of the EPBC Act and to assessments for the purposes of export approval under Part 13A of the EPBC Act.

We believe that it is entirely appropriate that Department of the Environment (DoE) is responsible, under the EPBC Act, for ensuring that any Australian fishery does not adversely affect the survival or recovery of protected species or the survival and recovery of listed threatened species, since the status of those species is determined under the EPBC Act. Similarly, we believe that it is appropriate that DoE assesses Australian export fisheries. We believe that, as well as providing confidence that the impacts of fisheries are acceptable, these assessments have been particularly valuable in driving improvements in environmental management in both Commonwealth and State-managed fisheries.

Strategic assessments at the Commonwealth level and assessments of all export fisheries have been, and will continue to be, an important tool in further improving fisheries management in all jurisdictions. We further believe that extending Strategic Assessments (or an equivalent accreditation) to the States and the NT would help to improved management arrangements in those jurisdictions. This would involve increasing the robustness of the current Wildlife Trade Operation[6] (WTO) assessment of the ecological sustainability for State/NT fisheries and extending it to apply to all fisheries (currently it applies to only fisheries that wish to export product); conducted independently by the Commonwealth department responsible for the environment. Such an arrangement would over time greatly enhance the management arrangements in these jurisdictions and would also "level the playing field" and harmonize environmental requirements across jurisdictions.

A particular strength in these arrangements is the independent nature of the assessments and as such we believe that the process must remain within DoE and not be devolved to fishery management agencies such as AFMA or the States/NT. DoE needs to be adequately resourced to undertake these assessments.

In order to deliver effective environmental outcomes, this process needs a number of improvements. Firstly, the 'guideline' which fisheries need to meet must be reframed to be outcome based. The current process oriented approach allows poor standards of fishery management to be endorsed under a WTO. Secondly, strong enforcement of conditions and recommendations is required immediately. WWF and TRAFFIC agree that in some cases, a fishery may be allowed time to address an issue (on provision that it's not a high risk matter) and that this should be administered through time bound conditions and recommendations. However, it has now become common that fishery WTO permits are being renewed and extended despite

[6] WTO assessments are undertaken under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*

conditions not being met. In addition, all elements of the Guidelines should be enforced across all jurisdictions, including the requirement to provide annual reports. It is notable that the many annual reports contain only a fraction of the required information and that this is not being followed up by the Department of Environment. In both cases, this is totally unacceptable and this should be addressed immediately.

Consolidation to best practice not lowest common level. Internationally Australia has a good reputation in relation to the management of fisheries. To some extent this reputation masks the very large differences in the management of target, non-target and protected species interactions, within and between jurisdictions. We were a little surprised to see in the TOR the general statement that "..... *Australian fisheries are regarded as sustainable, reliable and safe* ...". We would question the statement that Australian fisheries can be characterized as generally sustainable (we believe there are significant differences across and within jurisdictions) and we do not understand against what measure(s) "reliable and safe" are being judged.

Irrespective of these general statements, in the context of finding efficiencies, the risk is that consolidation leads to adoption of the lowest common denominator. In Australia, and globally, the jurisdictions which are the most advanced in terms of a high standard of management are also those which tend to be most profitable, e.g. Western Australia[7]. Conversely, those that have failed to introduce effective regulation to protect marine resources and its use by fishers are performing the worst environmentally and economically e.g. Queensland[8]. Clearly in order to maximize the return to the Australian community from the use of marine resources, high environmental standards are paramount. We believe it is essential that any recommendations from this Review protect existing highest ecological sustainable outcomes and improve the ecological sustainability where such improvements are required; rather than lead to the adoption of the low common environmental objectives or measures.

Harvest Strategy. The development and implementation of a Commonwealth Fisheries Harvest Strategy Policy and Guidelines (HSP) has improved the management of the target species in Commonwealth fisheries. The first HSP was developed in 2007 and reviewed in 2013. The review concluded that generally the HSP was appropriate and working to provide best practice guidance to AFMA and fisheries managers. It did however identify areas that could be strengthened. In terms of efficient management, we support the use of harvest strategies and harvest control rules, and recommend the development and adoption of these for all Australian fisheries; noting of course that these must be kept up to date.

It must be understood that the Harvest Strategy tool is commonly applied only to commercially valuable species currently. WWF and other environmental groups, argued through the Commonwealth Harvest Strategy review process that it should better capture the management of bycatch given that no species should be offered inherently poorer protection based on their commercial value (a principle that is supported in Commonwealth fisheries law). This is one of the improvements hoped to be included in a revised version. We note that accurate and reliable data on the biology of species, the nature and extent of the fishery and on economic aspects of the fishery is essential to ensure the value of a HSP. Such information will involve potentially increased regulation and cost. To the extent that this data is unavailable or too costly to collect then increased precaution will need to be applied in management arrangements.

It should be recognized that a HSP is not designed to manage other environmental issues such an impacts on ecosystem process, habitats and threatened and endangered species, so there should be no expectation that even a highly robust HSP would be sufficient to manage all environmental and fisheries management issues.

[7] We note the WA Government's commitment to do Marine Stewardship Council (MSC) pre-assessment of all state fisheries. This could be seen as a goal for all Australian State and Commonwealth fisheries.

[8] Where to Now? The Management of Commercial Fisheries in the Great Barrier Reef World Heritage Area. A Report Prepared for WWF Australia. Prof. Daryl McPhee Bond University, Queensland, Australia. 2014.

Bycatch. There is both a National Policy on Fisheries Bycatch and a Commonwealth Policy on Fisheries Bycatch that provide useful guidance on this matter. The National Policy was developed in cooperation with all Australian governments and provides a national framework for coordinating efforts to reduce bycatch. The policy provides options by which each state/territory jurisdiction can manage bycatch coherently and in a national context while still allowing for differences in state/territory fisheries. The Commonwealth Policy seeks to ensure that the direct and indirect impacts of fishing on ecosystems are taken into account and managed accordingly. This is done through mechanisms that reduce bycatch, improve the protection for vulnerable species and arrive at decisions on the acceptable extent of ecological impacts.

The Commonwealth Policy was reviewed in 2012-13 and a report issued in May 2013. The review recommended a revised bycatch policy that adopts risk-based approaches to assess the level and likelihood of impacts on bycatch species. As part of the review we expressed the view that there needs to be greater coherence between the HSP and the Bycatch policy and as mentioned above would like to see harvest strategies cover both target and retained species.

We support the development and use of risk-based approaches where there is limited information and greater uncertainty, however the management responses applied need to be commensurate with the level of risk. Risk assessments must adequately cover all aspects of ecological sustainability, resource allocation and social license, not just target stocks sustainability. Greater levels of regulation will be required where there is greater risk and uncertainty.

Science. Good fisheries management processes rely on the availability of sufficient science to guide decision making. This is a particular challenge for fisheries management given the high degree of uncertainty in our understanding of the marine environment and even in relation to individual target species. This lack of understanding covers a wide range of issues, from species biology (e.g. do we know enough about what age a particular species starts to reproduce in order to make sound management decisions), through to lack of data on fishing mortality (e.g. do we really have sufficient information to manage risk of overfishing, if fishers are only reporting some species at genus or even family level and there is no information on the proportion of the catch discarded).

In the face of uncertainty and lack of full information, the concept of risk-based management of fisheries has evolved. In theory this is a sound approach which suggests that where detailed information is not available, a more conservative approach to management should be adopted. This is a tradeoff however as although the industry saves fund by not investing in additional research, regulation must enforce limits which reflect the uncertainty. In addition, given the growing population, and the knowledge that demand for seafood will grow by up to 30% by 2022, reliance on risk based management alone does not hold up for our fishing future. Where demand for the maximum ecologically sustainable harvest increases, and the need to know actually where that line that defines overfishing is, will become more important. Hence, it would be shortsighted and dangerous to consider that cost cutting in the area of science, data and analysis will improve the productivity of fisheries. In fact, given that the need for greater certainty will only increase as markets drive industry to fish 'closer to the line', this is an area that will require more resources. Importantly, an ideal way to increase efficiencies to support fishery productivity here is to invest in innovative techniques and approaches for collecting and analyzing data.

The Issues Paper asks a series of questions in relation to scientific research in support of management arrangements, including: "*How well does current scientific and research effort support the environmental and ecological objectives of fisheries management?"* Differing arrangements apply across the different jurisdictions for the provision of scientific information. There has been some duplication in effort, although there has also been significant collaboration, particularly on near shore species managed across State/NT boundaries. At the Commonwealth level, AFMA has relied on the CSIRO and the FRDC to provide scientific advice. CSIRO has played a critical role in not only providing fundamental stock assessments, but also in developing important new tools, including Management Strategy Evaluation, Management Procedures for specific fisheries and the methodology to conduct an ERA. However, funding for day to day fisheries work has been constrained in more recent years with the development of

Flagship programs and less emphasis on day to day fisheries work. This implies that the day to day work is adequately resources based on core funding which is not the case.

Fish processing. Food safety aspects of fish processing are understandably important. From an environmental and fish processing perspective the key issue here is traceability. Increasingly catch documentation schemes and broader certification schemes, such as the Marine Stewardship Council (MSC) (with chain of custody requirements) are important links to large established markets (the US, EU and to a lesser extent Japan). While these schemes impose costs they also provide benefits. The catch documentation scheme implemented by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) has helped to provide a price premium for legal Patagonian toothfish and Australian operators in this fishery have recognised the important benefits it provides in access to premium markets. As such it is seen as a legitimate cost of doing business. Given the extensive trade of seafood products, both for processing and for final consumption we believe their needs to be greater attention to traceability to ensure Australian consumers have reliable information on both the sustainability and legality of the products they are purchasing from domestic and internal suppliers.

While currently such schemes may attract a price advantage, the trend in the market is to require this robust traceability. This is to support knowledge of the product's origin and evolution through the supply chain and will be considered a mandatory pre-competitive issue as more and more markets respond to consumers desire to know where their food is from, how is was produced and that it is legal. Undermining or thinning traceability requirements, including those that exist throughout the food processing sectors, would also undermine the Australian seafood sector's ability to trade successfully in the future.

Labelling. Approximately 70% of Australian seafood consumption comes from imported products. Yet according to industry surveys, most Australian consumers believe they are purchasing Australian seafood[9]. The discrepancy between public perception and fact shows that Australian consumers are not adequately or accurately informed about the seafood they are eating including what it is and where it is from. Labelling is an essential element in providing consumers with the information they need to make informed choices when purchasing seafood and Australian laws are lagging behind international standards to the detriment of both the consumer and the Australian fishing industry.

While some progress has been made at the retail level, even in this sector arrangements generally provide only limited information (imported or local). Despite recent proposals to improve seafood labeling, supported by both the commercial fishing and conservation sectors, the food service industry (restaurants, cafes and hotels, etc.) in most parts of Australia is exempt from even country of origin labelling requirements. The exception to this is the Northern Territory where all imported seafood prepared for immediate human consumption is required to be labelled as imported. We recommend that mandatory consistent seafood labelling laws be adopted specifying species, origin and fishing/farming method at point of sale and traceability through the supply chain that encompasses all seafood sectors to allow consumers to make well informed choices and to protect against the purchase of illegally caught product.

Providing mandatory information regarding sustainability on a product is more challenging and we believe the voluntary measures such as MSC and the Aquaculture Stewardship Council (ASC) serve the purpose of sustainability labelling well. Both of these organisations certify compliance with a robust sustainable standard of management, ensure strong traceability and provide a high degree of relevant information to consumers.

[9] http://www.wfsa.org.au/index.php/news2/41-national-seafood-industry-alliance-submission-country-of-origin-labelling-inquiry

TOR 3. The extent to which accreditation schemes or recognition of equivalency could reduce the regulatory burden and increase productivity.

The MSC standard is the most scientifically robust available globally. The system through which the standard is applied and reviewed is equally world's best practice including opportunities for full stakeholder participation and objections processes. Given this, WWF and TRAFFIC would endorse the recognition of equivalency in government regulatory processes, including WTO and strategic assessments under the EPBC Act. In fact, due to the higher standard and more frequent review of MSC certification, the application of the WTO and strategic assessments represent costly duplication for governments and fisheries which have already demonstrated their credentials through a third party system. We would limit equivalency of certification schemes to those that are ISEAL approved which is endorsement of the robustness and scientific credentials of the standard.

TOR4. The extent to which greater use of cost recovery arrangements is applicable and informs the cost of delivering fishery production, conservation and other community service obligations.

The costs associated with managing a fishery need to be determined based on the costs that would be incurred by governments in the absence of a fishery existing and the additional costs incurred as a result of the fishing activity in that fishery (which must include the cost of managing target stock as well as other environmental issues). This latter cost needs to be recovered from the sector undertaking the activity as the recovery of the costs involved in managing a fishery or fishing sector is an essential element of effective and transparent fisheries management. However, it is the former cost of managing the environment in the absence of fishing that often benefits from research conducted as part of industry funded fisheries assessments and, as such, "full cost recovery" also needs to be balanced against the community benefits fisheries provide the broader community. Unfortunately cost recovery is not applied consistently across jurisdictions, which means fishers in different jurisdictions face differing economic signals. In addition, as there is no resource rent collected from the fishing sector's access to the community owned resource, the cost of the resource in the production process (in the commercial sector), or of access in the recreational sector, is also not included in costs faced by these sectors.

As a minimum then, harvesters of the resource should be meeting all research, management and compliance costs. As a general proposition, if a commercial or recreational fishery cannot afford to pay for the cost of management then that fishery should not be able to access the resource. Given that in many jurisdictions the cost are not being met by the industry, many jurisdictions are directly subsidizing management and in some jurisdictions sub-standard management is occurring due to the lack of government funding to undertake contemporary management. While the subsidization of fees has provided historical benefits for some state fisheries through reduced business costs, the growing sustainability focus of major buyers has seen markets for these fisheries decline as buyers preference products from more robustly managed fisheries.

WWF and TRAFFIC promote that in the pursuit of the most efficient, ecologically and economically sound fisheries regulatory system, subsidies must be removed and the fishing industry must be responsible for the true cost which comes from managing the common property asset from which value is gained.

TOR5. The extent to which fisheries management regimes align with and protect the interests of the wider community (in particular, the balance between commercial, recreational, indigenous fishing and conservation interests, and consumers' interests).

Commercial fisheries management requires a mix of tools. The Issues Paper raises a series of questions that could potentially leave the reader thinking there is one management tool available to fisheries managers/agencies which is vastly superior to other tools. This is not the case and experience over time has identified that there is no "one size fits all" when it comes to fisheries management given the diversity of environments, species, fishing gears and sectoral

uniqueness; as well as multitude of other factors. Different tools are needed to achieve different outcomes or in fact the same outcome in different fisheries. The most effective fisheries management occurs when it is outcome focused rather than 'tool focused'. In this way the starting point should be to define what needs to be achieved and then to conduct cost benefit analysis on the range of tools and approaches available to achieve it. The outcome will be different depending again on the individual circumstances.

We caution the Commission against assuming that there exists one or even a set of 'ideal and most cost effective tools'. The emphasis should be on the *effective process* which delivers the most cost effective and robust means of delivering the required outcome.

Input and output controls. For target species management, contemporary thinking generally supports the use of output controls versus input controls (there are exceptions to this for example, squid fisheries involving species with very short life spans and rapid population turnover). And where output controls are used, Individual Transferable Quotas have been used successfully in many fisheries around the global as this system allows for flexible adjustments according to a variable Total Allowable Catch (changing in response to science describing the stock size and status); and allows for market based trading of quotas. Generally, this provides an effective means of managing the direct harvest of species where previously common indirect control of harvest through input controls failed (for example, boat size capacity, days fishing, size of gear).

Although output controls are generally more effective at managing target stock issues, input controls are more effective at managing the other effects on the environment. For example, input controls on the size of a trawl net may not be important with regard to managing the total catch of its target species, but regulating for the size of the mesh will have an important influence on the amount of fish bycatch; and regulating the use of bycatch reduction devices (BRD's) may reduce the mortality of a range of protected species. Similarly, spatial input controls like closed areas can be vital to protect vulnerable habitats, protected species,or vital spawning or nursery grounds.

As such, fisheries managers now rely on both input and outputs style tools to meet the various objectives. Even where single species management is concerned, as is the case with the Southern Bluefin Tuna (SBT) fishery (a quota managed fishery), a range of regulatory controls are required, including controls to mitigate interactions with protected species including seabirds, sharks, dolphins, seals and turtles; non-target species, limiting or banning the discharge of offal; the use of non-approved gear and the protection of spawning grounds or nursery areas etc.

It is also important to note the role of non-fisheries management tools in the management of fisheries. The use of scientific reference points provided by larger no-take marine protected areas make it possible to significantly reduce the cost of obtaining data to address ecosystem based management assessment requirements and third party assessments. For example in the Western Rock Lobster fishery, which is one of the most data rich fisheries in Australia, research has determined that the most feasible and cost-effective option for understanding the ecosystem effects is a comparison with marine protected areas (MPAs) (e.g. Jurien and Rottnest).[10] Similarly MPAs are emerging as one of the most cost-effective and feasible management tools to separate and therefore better manage the effects of fishing and a changing climate.

Sectoral management and allocation across sectors. WWF and TRAFFIC would like to see improvements and greater consistency in the management of each sector – commercial, recreational, indigenous, charter and aquaculture. The starting point for this action is the collection of appropriate data on the sectors' direct and indirect impacts; and the economic, cultural and social values that can be attributed to each sector to compare with the non-extractive values provided by the environment. This information is critical in the determining

[10] http://www.fish.wa.gov.au/Documents/research_reports/frr199.pdf; http://www.fish.wa.gov.au/Documents/occasional_publications/fop053.pdf

allocations between non-extractive and extractive uses to ensure maximum benefits are returned for current and future generations.

Wherever possible we support the use of market based management measures to ensure fishers receive appropriate economic signals and fishing effort and sustainability are kept in balance. In order to improve arrangements across and within the sectors more scientific assessment and monitoring of stocks and ecosystems is essential and where excess capacity and over-capitalisation exists, targeted structural adjustment schemes should be introduced. Obviously this will come at an expense, and as we outline in the introduction, this should be covered as part of an industry cost recovery process given the main beneficiaries will be those remaining within a more sustainable fishery. Unfortunately we feel there has been a lack of political will (and resources) particularly in the States and NT to address these issues.

Clearly these structural reforms need to be conducted within a policy framework that provides an end goal for the restructure process that is well articulated and widely promoted to all stakeholders. This policy framework, like the Commonwealth harvest strategy policy, should have clear goals in terms of the ecological, social and economic targets that the restructure programs are meant to deliver. Reductions in the amount of commercial and recreational fishing effort not only improve the performance of the remaining operators, but also improve the ecosystem services provided by increased target stock abundance and more resilient aquatic communities that can function in a less disturbed environment.

The issue of allocation is far more complex than the Issues Paper outlines which presents a "single use" fishing centric view on the value of Australia's natural marine environmental capital. At present there is no simple and effective way of managing or ensuring that the allocation of Australia's aquatic natural reserves among user groups or to maintain environmental values will maximises the value to Australians. now and over time. Australian fisheries agencies and fishing stakeholders could learn a lot from agencies responsible for the development and implementation of multiple use planning instruments like marine parks were community benefits are maximised through the implementation of zoning instruments that balance the use and non-use values of multiple stakeholder interests.

In terms of commercial fishing, most allocations are based on historical access to the resource. In most jurisdictions there are however markets which exists both for fishing permit/licenses and quota. This enables new entrants to buy access to the fishery/resource and for those exiting to leave with a financial return, albeit subject to an assessment of the value of the license or quota that invariably reflects to a large degree how well the fishery is being managed and its long term sustainability.

Over time there have been decisions taken to reserve certain species for certain groups. For example some species are specifically reserved for the recreational fishing/charter fishing sectors. This has tended to be by way of a political decision rather than a more systematic assessment of relative benefits/costs and whether this maximises the benefits to the Australian community.

There are potentially a limited range of market-based tools available for resource sharing within and between groups once initial allocations have been made. One approach is to allow for a system in which any expansion of one group outside its historical take would be dependent on the lease or purchase of quota from the another sector. It seems inappropriate that the general taxpayer should have to fund this purchase/lease, therefore we prefer market based trading models. We are aware that both Western Australia and South Australia have invested significantly in allocation processes across harvest sectors and investigated options for both market based and administrative based frameworks for adjustments. We suggest that the Commission review the outputs of this significant work.

Recreational fishing. Recreational fishing is a pastime enjoyed by a large proportion of Australians. While evidence suggests that as a pastime this is declining[11], WWF and TRAFFIC are concerned that its impact on target and non-target species and the broader ecosystem is not being adequately recognised or managed. There is no reason to accept lower standards of management for the recreational harvest of marine species compared to the commercial harvest however, this is currently not the case.

There is a need for more formal management arrangements, better data collection (to improve the understanding of the impact of recreational fishing), better monitoring and enforcement and that the costs associated with these improvements be fully cost recovered from those who participate in this pastime (e.g. through appropriately scaled license fees).

Frequently, those involved in this sector point to significant multiplier effects of recreational fishing i.e. paying for vessel registrations fees, fuel expenditure, food or camping permits for example and buying the equipment needed for such activities. There are sound public policy arguments for the costs attributed to the management of both commercial and recreational fishing to be recovered from those who enjoy access to community owned resources.

For iconic species such as black and blue marlin, sail and swordfish and large tunas (such as Southern Blue Tuna) a system of individual fish permits could be established and these could be auctioned on an annual basis as a right to take an individual fish with appropriate measures built into the system to also account for post-capture mortality of any released fish from this sector.

Illegal fishing. In this section we have assumed that the Commission wishes to consider not just illegal fishing, but illegal, unreported and unregulated (IUU) fishing. IUU fishing is often referred to in the context of foreign vessels fishing illegally in waters under the jurisdiction of a state without appropriate authorisation. However IUU fishing is far more complex than this and essentially describes fishing behaviour that take place outside or contravening agreed management arrangements and international norms including (1) a state exercising its jurisdiction over fishing activities of all vessels, both national and foreign within its EEZ, that is, out to 200 nautical miles from its coast; and (2) beyond the 200-mile EEZ, on the high seas, vessels are subject to the legislation and control of their flag State.

IUU fishing can and does occur in all jurisdictions. Globally, IUU fishing is a significant problem. By its nature it is difficult to put an accurate figure on the level of IUU catches. The first detailed study (Agnew et al., 2009[12]) provided a global estimate of between 11 and 26 million tonnes, excluding discards and artisanal unregulated catches. This represents between one-sixth and one-third of reported global wild fisheries catches and a value of somewhere between US$10-23 billion.

Internationally, Australia both in RFMOs and more generally has taken a high profile stance in the fight against IUU fishing. It has ratified or adopted all the key international instruments (most recently the FAO Port State Measures Agreement) and rigorously implements agreed catch documentation schemes. It is an active participant in six RFMOs and regularly pushes for improvements to conservation and management measures to improve the transparency and accountability of fishing by member states. This is not to say further improvements cannot be made.

Within the Australian EEZ foreign illegal fishing is still a problem but not to the extent as it has been in the past. Illegal fishing by Indonesian vessels in northern waters has in the past been a problem, but incursions are now much less frequent due to heavy surveillance. Likewise illegal fishing around Australian Antarctic islands - Heard and McDonald Islands in the Southern Indian Ocean and Macquarie Island south west of New Zealand has not been a significant problem in recent years. However the Australian Government needs to remain vigilant as there are large

[11] Sutton, SG., Dew, K., Higgs, J. (2009) Why do people drop out of recreational fishing? A study of lapsed fishers from Queensland, Australia. Fisheries 34(9) 443-452.

[12] Agnew, D.J., J. Pearce, G. Pramod, T. Peatman, R. Watson, J.R. Beddington and T.J. Pitcher (2009). "Estimating the Worldwide Extent of Illegal Fishing". PLOS ONE 4(2). doi:10.1371/journal.pone.0004570

fleets operating in the Indian and Pacific Oceans which have in the past fished both immediately adjacent to the EEZ and also within it. In this regard it is appropriate for Australia to continue its cooperation with and support to neighbouring developing states in their attempts to improve regional monitoring, control, surveillance and enforcement.

Within domestic jurisdictions IUU fishing can and does occur. No doubt AFMA and State/Territory submissions will provide the Commission with estimates of the level and extent of this activity. The level of illegal fishing activity could be significantly reduced for the commercial fishing sector through the national expansion of systems like the Automatic Identification System (AIS) used to reduce the risk of vessel collision to include all commercial fishing vessels operating in Commonwealth waters.

As a net seafood importer, Australia has a responsibility to ensure that consumption of imported products in Australia is not contributing or supporting IUU fishing. The EU has introduced legislation which requires all imported products to demonstrate its legality The US are in the process of drafting similar import legislation. Given that Australia already has legislation in place to require our own seafood production industry to demonstrate environmental credentials in order to allow product to be exported, it would seem as a minimum Australia should adopt the same position as EU and US and require all imported products demonstrate its legally and sustainable produced status.

Precautionary principle. The definitions of the Precautionary Principle in the various fisheries acts need to reflect contemporary understanding and be sufficiently articulated to provide guidance to management agencies. We favour the use of the definition in Clause 3.5.1 of the Intergovernmental Agreement on the Environment (IGAE) as follows: *1.5.1 Precautionary principle—*

> *Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*
> *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and*
> *(ii) an assessment of the risk-weighted consequences of various options.*

There are a number of factors that may impede the appropriate application of the precautionary principle by management agencies. These include:

1. concern at the political level as to the undesirable regional or economic consequences of rigorous application;
2. a lack of certainty about the Government's and the community's expectations about the appropriate level of precaution that should be applied;
3. an unwillingness, on the part of management agencies (possibly due to 1 above and particularly where the Minister is the decision maker), to respond to uncertainty relating to the impacts of fishing in the way prescribed by the precautionary principle; and
4. a lack of effective oversight of management responses against key legislative objectives.

We support the use of Harvest Strategy Policies (HSP's) to set standards and provide responses to our knowledge of stocks or to changes in the ecosystems supporting these stocks. An important element of this approach at the Commonwealth level has been the adoption of an Ecological Risk Assessment (ERA) approach to management. This has been a major step forward in ensuring that species at high risk from fishing are the focus of management. The ERA approach includes a precautionary approach to determining risk by ascribing high-risk profiles to species for which there is a lack of data or uncertainty in information. This has been well established at commonwealth level and we recommend that such tools be a minimum requirement of implementing the precautionary principle in all jurisdictions.

International obligations. Australia is a party to numerous international agreements that have an impact on domestic and high seas fisheries as well as specific environmental goals. These agreements provide benefits as well as impose costs on the fishing sector. Among the direct benefits is the 200nm EEZ that surrounds Australia and its territories as well as access to a range of high seas fisheries resources. Some of our high value domestic fisheries are directly dependent on highly migratory species, so it is vital that we are engaged in their management. The costs associated with these benefits include the need to manage the use of our EEZ in line with international expectations. We also have an obligation to be an active participant in the management of high seas fisheries; and as a wealthy developed nation Australia has a responsibility to work with other likeminded nations to protect and manage the high seas sustainably.

Australia also works with our Pacific and South East Asian neighbours to achieve important regional outcomes, which are linked to the management of our marine resources, and enables our Government to provide leadership on a range of important environmental and fisheries issues globally. We believe Australia has an obligation to participate in these international agreements and that we benefits from being involved.

TOR7. The degree to which cross jurisdictional regulatory arrangements are transparent, accountable, proportionate, consistent, effective and targeted.

Consistency of import and export regulations regarding sustainability. One area we suspect that may not be addressed by this Review is the significant disadvantage faced by the commercial fishing sector due to the lack of regulation relating to the sustainability and/or legality of imported product. This is clearly evident at the retail level when relative prices are compared. Unsustainable fisheries and fishing practices have significant environmental, food security, economic and social consequences, including the destruction of ecosystems, the loss of species, and forced labour/poor working conditions. Above in the section on IUU, we recommend that Australia develop regulations to allow seafood to be imported to Australia where it can be demonstrated to the legally caught. We would also support the development of legislation referencing a risk based assessment process as outlined by Sant et al. (2012)[13] and Lack et al. (2014)[14] to only allow sustainable products, or products moving in a formal way to sustainability, to be imported to Australia. This would mean that Australia is consistent in terms of its import and export requirements regarding sustainability.

TOR8. The degree to which cost effective and practical non-regulatory mechanisms could be expanded to achieve fisheries management outcomes.

We are supportive of the concept of co-management. In theory it is very attractive as it promotes the "ownership and custodianship" of the resource and the ecosystem which supports them. The concern we have is that given the "market failure" outlined in our introductory observations, we wonder if it is realistic to think that a complete devolution of responsibility to the fisheries sector can work without first implementing major reforms of the commercial and recreational sectors, and support for their associated representative bodies.

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[13] Sant, G., Goodman, G., Crook, V., Lack, M. and Oldfield, T.E.E. (2012). Fish and Multilateral Environmental Agreements: developing a method to identify high risk commercially-exploited aquatic organisms in trade and an analysis of the potential application of MEAs. JNCC Report No. 453. Joint Nature Conservation Committee, Peterborough. Available at http://jncc.defra.gov.uk/page-6120.

[14] Lack, M., Sant, G., Burgener, M. and Okes, N. (2014). Development of a Rapid Management-Risk Assessment Method for Fish Species through its Application to Sharks: Framework and Results. Report to the Department of Environment, Food and Rural Affairs. Defra Contract No. MB0123. Available at: http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=18800&FromSearch=Y&Publisher=1&SearchText=shark&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description

There are a range of potential co-management models - ranging from ensuring all key stakeholders are involved in considering management issues and providing input to decisions, to devolving responsibility for the management of the resource and ecosystem against agreed targets and outcomes to a group or groups. In practice there is limited scope for the implementation of the latter more advanced form of co-management in Australia as there are few groups where its participants form a united community with a common position in relation to management of its fisheries.

Given that the fishing sector is accessing a community owned resource any non-regulatory arrangements must still include some form of independent scrutiny, reporting and auditing of the management arrangements and its success or otherwise.

Marine Parks and Reserves. Just like terrestrial national parks, "no-take" marine reserves are free from extractive activities including fishing, collecting and mining. They should as far as practicable be buffered from other external human impacts and are an essential tool in the management of marine biodiversity particularly in the face of anthropogenic impacts like fishing, climate change and declining water quality as they have been found to promote resilience and improve restoration rates[15][16]. The current widespread coral bleaching emergency on the Great Barrier Reef highlights how critical these marine protected areas will be to the future survival of marine biodiversity and the fisheries that rely on resilient populations of target species.

While we are happy for marine protected areas to be included in this review, given their intertwined role in the management of fisheries, we are deeply concerned with the lack of detail about their goals and objectives in the Issues Paper which might have included:

- Even in well managed fisheries no-take Marine Protected Areas provide a range of benefits and help Australian jurisdictions address a number of national and international commitments. These benefits include:Preservation of representative samples of biological diversity;
- Protection of critical sites for reproduction and growth of species;
- Protection of sites with minimal direct human stress to maximise their resilience or self-repair from other stresses such as increased ocean temperature and other features of climate change like storm strength and frequency;
- Settlement and growth areas providing spill-over recruitment to fished stocks in adjacent areas;
- An "insurance policy" to protect populations against the unknown aspects of fishing activities;
- Focal points for education about the nature of marine ecosystems and human interactions with them;
- Sites for nature-based recreation and tourism; and
- Undisturbed control or reference sites serving as a baseline for scientific research and for design and evaluation of management of other areas.

Without these details readers of the Issues Paper cannot fully understand the role these areas play in protecting marine biodiversity and progressing Australia's commitments to international conventions, and internally as part of the National Representative System of Marine Protected Areas. Furthermore, we are deeply concerned over the leading nature of question five included in the recreational submission form http://www.pc.gov.au/inquiries/current/fisheries-aquaculture/recreational-fishers-have-your-say. This question could have just as easily included the term "fisheries closure" and not marine reserves which is an emotive issue for many anglers. Fisheries "closed waters" are common tools applied to address fisheries management

[15] Mellin, C., MacNeil, MA., Cheal, AJ., Emslie, MJ., and Caley MJ (2016) Marine Protected Areas increase resilience among coral reef communities. Ecol Lett. doi:10.1111/ele.12598

[16] Lamb JB, Williamson DH, Russ GR, and BL Willis (In Press). Protected areas mitigate diseases of reef-building corals by reducing damage from fishing. Ecology. DOI:10.1890/14-1952.1

objectives, with some authors[17] outlining fisheries closures can be more extensive than Commonwealth marine park closures.

MPA's are becoming more commonly seen by fisheries agencies as a mechanism to reduce management costs associated with addressing uncertainty in fisheries management arrangements[18] and this role is increasingly becoming recognised by some industry sectors[19] seeking to progress towards EBFM and promote this to their as a means to improve market opportunities and social license. This hold true for even for probably Australia's most data rich fishery, the western rock lobster fisheries, whose . MSC certification isheavily underpinned by MPAs[2021]

While it is often argued MPA's are expensive to enforce, the same technology and legislation used to enforce closures applied under fisheries legislation can be applied to the enforcement of MPA's. Furthermore, with rapidly advancing technology and its application in other remotely operated industries, the actual costs of remotely monitoring fleets of fishing vessels has plummeted while the usefulness of the monitoring systems to the operators has improved significantly to encompass personal safety alarms, electronic realtime messaging, asset tracking, engine monitoring, product temperature and legislative form completion to name a few. The refined information provided by electronic reporting also provides opportunities for greater levels of industry co-management like that developed for the Great Barrier Reef sea cucumber fishery which now has an industry driven fine scale rotational harvest strategy[22] within the GBR Marine Park.

There is ample evidence that MPA's work in terms of boosting the biomass of fish within them, however there is also large amount of evidence that highlights these benefits can be rapidly removed through relatively small amounts of fishing[23]. Clearly how the fish are removed, through illegal fishing activities or through sanctioned recreational line fishing, is not a relevant factor in the diminished returns provided by a compromised MPA. Also, the post-hoc economic and regulatory impacts of MPA establishment have been consistently lower than those predicted by industry interest groups, based on the experience from the extensive existing MPA network established throughout Australian waters.

No-take marine reserves are not the silver bullet for marine conservation or fisheries management outcomes. There will obviously be benefits to the management of fisheries by integrating the costs and benefits associated with the establishment of marine protected areas within the management arrangements of the fishery. For example, after the establishment of a new series of MPA's established using the Comprehensive, Adequate and Representative (CAR) marine planning approach, the presence of existing fisheries closures should be considered to adequately consider the "Efficiency" of the new zoning arrangements. Furthermore, a review of fisheries closures should be conducted as part of the new zoning implementation to acknowledge their relevance within the broader marine multiple use planning scenario. This synthesis of spatial closures for fishery management and conservation purposes will therefore reduce cost burdens on industry while providing increased resilience to the marine community. The Queensland Bech De Mer fishery provides a template for how fisheries management, primarily based on co-management arrangements, can be effectively balanced within a CAR based marine reserve. Likewise, with some minor reforms to the Queensland coral reef finfish fishery (electronic vessel tracking, better recreational data collection strategies and compliance) it could become the global showcase for sustainably produced coral reef finfish

[17] https://theconversation.com/marine-reserves-not-about-closing-fisheries-but-about-preserving-ocean-health-8936

[18] Pears, R.J., Morison, A.K., Jebreen, E.J., Dunning, M.C., Pitcher, C.R., Courtney, A.J., Houlden, B. and Jacobsen, I.P. 2012, Ecological risk assessment of the East Coast Otter Trawl Fishery in the Great Barrier Reef Marine Park: Summary report, Great Barrier Reef Marine Park Authority, Townsville.

[19] http://www.abc.net.au/pm/content/2015/s4284713.htm

[20] http://www.fish.wa.gov.au/Documents/research_reports/frr199.pdf

[21] http://www.fish.wa.gov.au/Documents/occasional_publications/fop053.pdf

[22] http://www.environment.gov.au/system/files/pages/2fc0a44f-4171-46ef-8735-224f4afaa06f/files/evaluating-rotational-harvest-strategies.pdf

[23] ftp://ftp.marine.csiro.au/pub/bax/Australian%20MPA%20review/Lavers%20MPA%20Work%20Nov-Dec%202010/Literature/Robertson%2098%20%20-%20QLD%20Temporary%20Closure%20Fishing%20Benefits.pdf

largely due to the resilience provided by the underlying network of no-take zones that are missing from other tropical reef fish species fisheries. The use of temporal “spawning closures” like those used in the coral reef finfish fishery, which prevent fishing from occurring when stocks are at their most susceptible, should also be more widely applied to other Australian finfish fisheries.

The establishment of MPA’s will displace fishing effort and we believe this effort should be removed through a structured licence surrender program for the commercial fisheries. The success of these types of programs in the past have been compromised in Australia through poor fisheries management controls which allowed latent or new fishing effort to be activitated post surrender[24]. The cost in terms of reduced yield when fisheries management settings are ideal and environmental conditions are stable, is insignificant compared to the 'real-world' costs of recent Australian fisheries failures. Furthermore these costs are significantly offset by economic benefits created by greater resilience when fisheries management fails or discrete environmental impacts occur, by marketing advantages and improved social license, and by the ability of reference areas to inform and improve harvest settings in a dynamic environment.

Ecosystem-based Marine Protected Areas incorporating core “no-take” reserves may require new approaches to management of marine environments, but the benefits will be significant and enduring.

Innovation and productivity. With the objective of a more viable fishing sector, reduced regulation and/or efficiency may create some gains and is supported only if sustainability across all measures is maintained. However, as demonstrated in our submission, while there is possibility to reduce costs through better cross jurisdictional coordinated management, and streamlined service delivery, there will be challenges that will limit the extent to which this is possible. In addition, we hope that we have demonstrated there actually will be a greater need for more science and monitoring so it is difficult to foresee future prospects for significant reductions in the cost of fisheries management. Without this investment it will be difficult for our fisheries to sustain a profitable and sustainability footing which has provided them with access to lucrative, but increasingly environmentally aware, export markets.

This turns our attention to others reforms that can deliver a more productive and profitable fishers sectors. We believe that the fishing industry should be investing heavily now in the question: *“How can fishers get more money for its product?”* and seriously explore potential avenues such as accessing more profitable markets; development of vertical integration; value adding product; a more consumer focused approach to fishing and processes; accessing additional revenue streams by the use of processing byproducts and the development of new products of waste material.

Concluding Comments

We welcome this Review and its focus to improve fisheries regulation without compromising fisheries policy and environmental objectives. This is an important yet complex task.

Our submission has sought to highlight our specific interests in this endeavor, however we would like to reiterate our strong desire to see both an efficient profitable industry working within best practice environmental standards and the long-term sustainability of the ecosystems that support the fisheries sector.

We hope we have been able to adequately describe the important elements which will help achieve these outcomes and remain available to provide more detail on the key elements contained in this submission should the Commission require it. We acknowledge that removing unnecessary and unproductive regulation is an important policy of the Government, but do not want to see fundamental environmental requirements which underpin contemporary fisheries management undermined or diluted.

[24] Gunn, J., Fraser, G., Kimball, B. (2010) Review of the Great Barrier Reef Marine Park Structural Adjustment Package. Report June 2010.

We look forward to the Commission's draft report later in the year.

Should you require further input or clarification in relation to this submission please feel free to contact Jo-anne McCrea, Australian Fisheries and Seafood Manager, WWF Australia.

Yours sincerely

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