Protected commercial fishing areas

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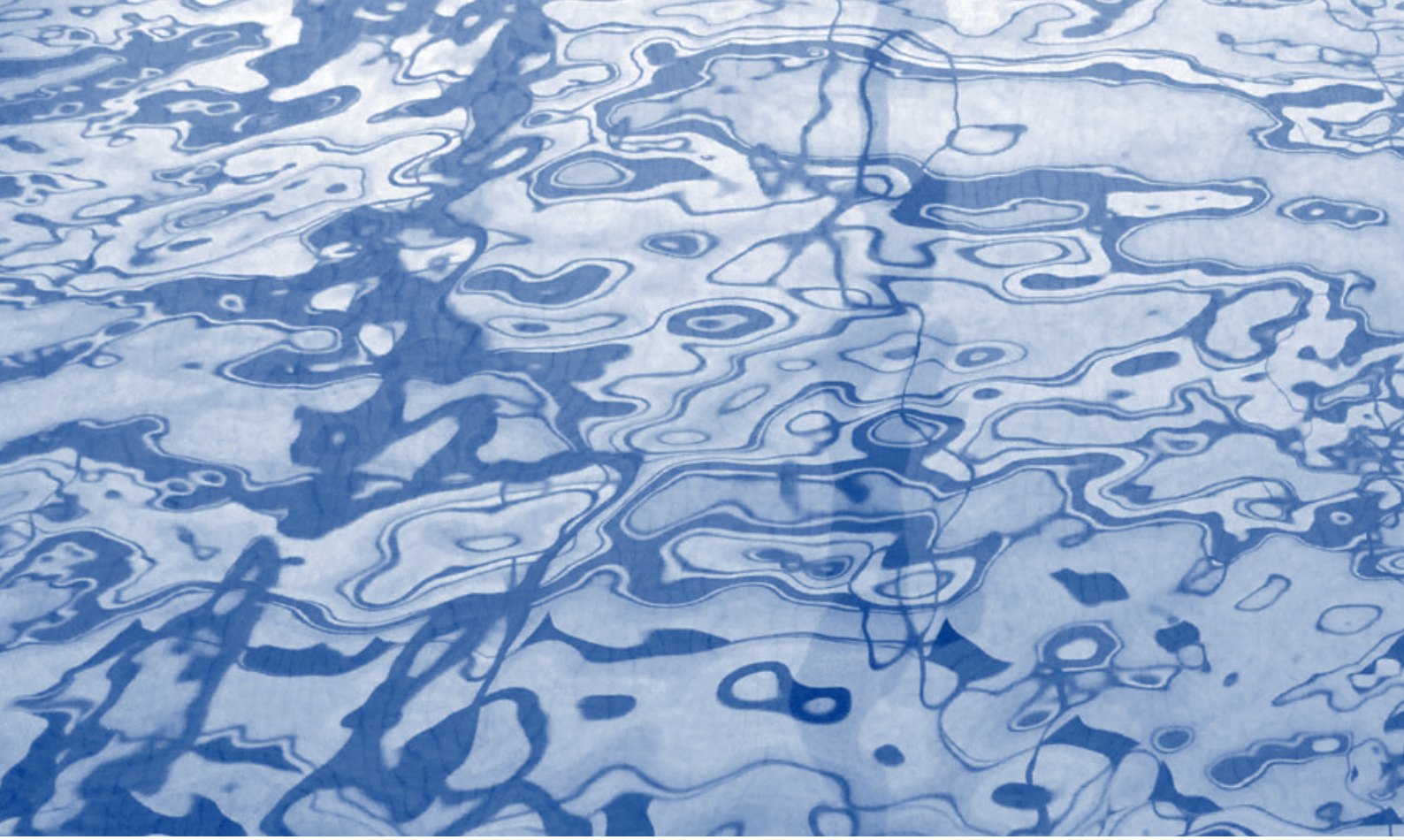

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Protected commercial fishing areas (PCFAS) – a concept for improving equity in resource allocation between aquatic resource users

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Introduction

Sustainable and profitable commercial fisheries are more likely when access rights to fishery resources are clearly defined and secure. Currently rights-based fisheries management is being defined in various international fisheries legislation and in policies describing access and resource sharing arrangements. However, such access rights to fisheries focus largely on the temporal security of the resource. The spatial security of key fishing grounds, as a commercial resource, is generally poorly considered within legislation, policies or planning both internationally and in Australia. This is undermining the future of many commercial fishing industries, the future of which depends on access to a relatively small number of highly productive fishing grounds.

This paper discusses how the establishment of Protected Commercial Fishing Areas (PCFAs) may assist in achieving equity in spatial resource allocation for commercial fishers. It considers current protection strategies for commercial fisheries and highlights where these can be improved. The precedent for the establishment of PCFAs with reference to existing protection measures utilised within primary industries and the relationship to recreational fishing, marine protected areas and international covenants are also discussed.

Diminishing fishing grounds – the need for protection

Similar to agricultural lands, fishing grounds are dependent on capacity (abundance, resilience, and stability) and suitability (climatic, economics and market) attributes. Few natural resources have even distributions. Natural resource bases vary in quantities, qualities and characteristics throughout space and time. Accordingly, natural resources need to be allocated carefully to ensure that appropriate distributions and long term social and economic goals are not extinguished (Cloke & Park 1985).

Fishers consider a fishing ground lost when regular fishing activity cannot be carried out, regardless of whether entry is blocked, space is lacking to make a worthwhile catch, or incidental risks to boat or gear are too high to bear (Wade 2004a; 2004b). Pressures pertaining to the accessibility and sustainability of productive fishing grounds are summarised in Table 1.

The cumulative effect, in terms of the spatial exclusion of the commercial fishing industry, is significant. Whilst there has often been a focus on the total area of a fishery, commercial fishing is usually concentrated in a very small proportion of that area. The cumulative impact of spatial restrictions and exclusions on commercial fishing grounds are illustrated in Figure 1. This location portrays the menagerie of spatial impacts on commercial fishing areas in the vicinity of Port Stephens, NSW, Australia. The layers of spatial exclusions and pressures include: national park access restrictions; marine park zoning; wetland protection; threatened species restrictions; expanding urbanisation; aquaculture lease areas; defence restrictions; recreational fishing exclusive access; port facilities and large vessel anchoring locations; outfall pipes; and, other use demands including scuba, dolphin watching and recreational fishing.

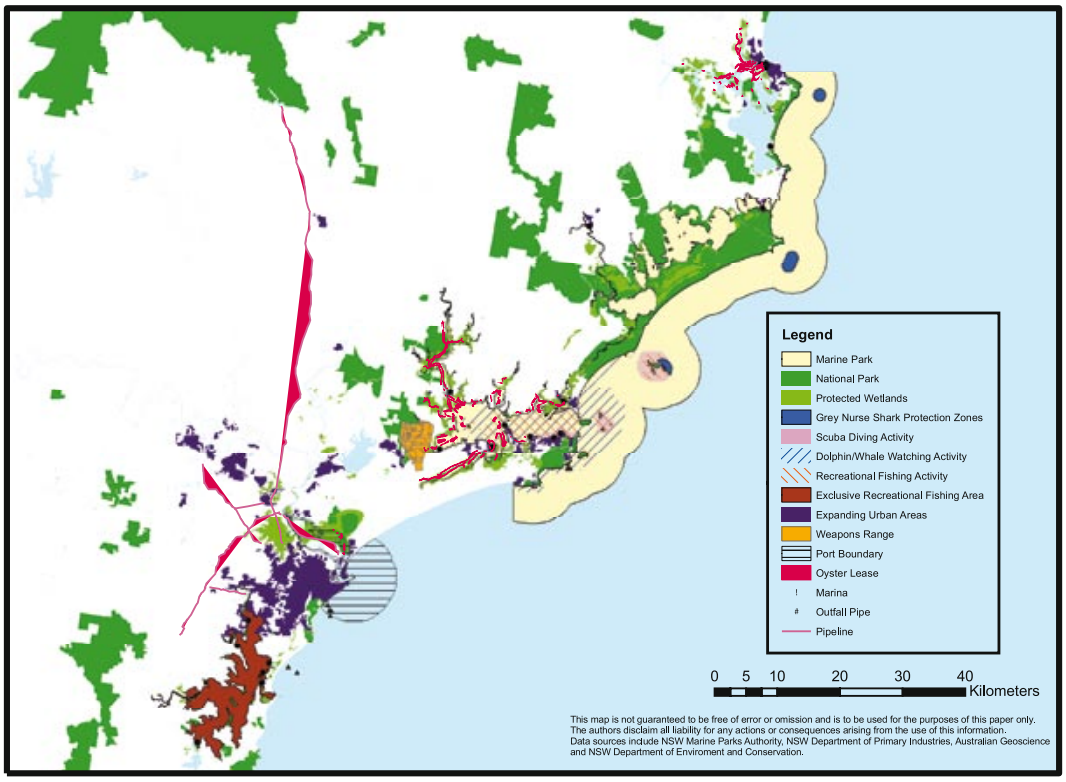
Table 1 - A summary of pressure on productive (commercial) fishing grounds

Pressure		Impacts to productive commercial fishing grounds
Loss of fishing grounds to alternate user sectors	Conservation	• Marine reserves and sanctuaries can result in loss of estuarine, nearshore and offshore fishing grounds • Terrestrial marine parks and reserves can impact on access to fishing grounds • Commercial fishing grounds are cumulatively impacted by evolving and expanding marine reserve systems aimed at biodiversity conservation and habitat protection via participation in international, national and regional protection agreements and strategies • Highly diverse ecosystem and habitat types with significant conservation importance, such as reefs, offshore islands and estuaries, are targeted for incorporation into marine protected areas. Examples include: GBRMP rezoning , SE Region marine protected areas reserve system (11 marine protected areas), marine parks establishment in NSW (33.6% State waters included in marine parks), marine national park establishment in Victoria (impacting on Abalone 15% TAC and Rock Lobster (8-16% biomass)
	Recreational fishing	• Exclusion of commercial fishers via management closures that allow access to recreational fishers • Dedicated recreational fishing areas resulting in loss of traditionally productive fishing grounds, such as estuaries (An example is the creation of 30 recreational fishing havens in NSW) • Impact most frequently felt in estuarine and nearshore fisheries
	Indigenous protected areas and sea rights claims	• The protection of culturally sensitive and important areas which typically occur in estuarine or near-shore reef locations, or on off-shore islands and resultant increased potential to incorporate productive fishing grounds • Exclusion of non-indigenous persons from extractive activities • Impact most frequently felt in estuarine and nearshore fisheries
	Mining and exploration	• Exclusion of all activity and some traffic within some areas under exploration • Exclusion of all traffic and activity from extraction sites and associated buffer zones (Wade, 2004a) • Impact most frequently felt nearshore and offshore fisheries
	Seabed infrastructure	• The presence of seabed infrastructure can impact on estuarine, nearshore and offshore fisheries Examples include moorings, pipelines, telephone lines etc • Infrastructure can also result in gear related restrictions for some fishers • Seabed Infrastructure often encompass buffer zones that exclude extractive activities
	Urban development	• Direct and indirect impacts on fishing grounds, including loss of access and decreased water quality. Examples include desalination plants, sewage treatment, power plants, and subdivision developments
	Defence	• Indirect impacts on fishing grounds, including permanent exclusion areas and extended closed areas (temporal closures) subject to training operations.
	Other commercial activities	• Whale and dolphin watching charters, scenic tours, motorised sports, skiing, PWC hire etc – impact on estuary fishing areas

Environmental impacts on fisheries resources	"Greenhouse" imarine protected areascts	• Increased aquatic acidity with associated impacts on species survival, presence and abundance. Habitat impacts, particularly to coral reefs and vegetative habitat • Increased aquatic temperatures. Impacts on species survival, presence and abundance and on reproductive ecology and success. • Increased sea levels. Associated loss of estuarine habitat (impacts to spawning grounds, nurseries and foraging habitat) and follow-on effects to estuarine fisheries. Little scope for habitat expansion in response to increased water levels due to terrestrial reclamation and development. Associated loss of nearshore reef habitat due to increased depth and decreased light penetration.
	Poor catchment management	• Increased sedimentation and associated habitat destruction in the estuarine and near-shore environment • Disturbance related decreased presence and abundance of endemic and transient species
	Point source pollution	• Potential for massive short-, medium- and long-term local and regional population impacts on fishing activities and habitat destruction (Examples include oil and chemical spills, sewage, stormwater drainage).
	Non-point source pollution	• Typically occurring in the estuarine and near-shore zones • Potential for massive short-, medium- and long-term local and regional population impacts and habitat destruction (examples include septic wastes, acid drainage, litter
Social impacts on fisheries resources	Public views concerning commercial fishing operations	• Some methods vilified publicly because of issues associated with habitat destruction and by-catch and non-selectivity • Typically can result in exclusion of some commercial fishers from highly populated areas • Impact most frequently felt in estuarine and nearshore fisheries
	Urban development	• Cultural shift toward "sea-change" lifestyles results in increased pressure on previously sparsely populated coastal areas and estuaries • Impacts to fisheries include: increased water traffic; and, increased recreational fishing pressure • Impacts most frequently felt in estuarine and nearshore fisheries
Economic impacts on fisheries resources	Increased costs of commercial fishing	• Restrictive cost associated with increased fuel prices may result in a preference for estuarine and near-shore fishing for those that hold multiple commercial endorsements
Fishing activity impacts on fishing resources	Overfishing and habitat destruction	• Loss of stocks and fishing grounds. World wide examples of depleted stocks and habitat loss.
Scientific impacts on fisheries resources	Adoption of precautionary principles	• Increasing awareness of issues associated with sustainability, in combination with an acknowledged paucity of available fishery data, has led the scientific community tot push for the adoption of precautionary principles associated with rates of extraction from some commercial fisheries

Figure 1. Example of cumulative effects of spatial impacts on commercial fishing grounds.

Port Stephens - Great Lakes Area



Benefits of PCFA establishment

PCFAs are about protecting and maintaining the availability of commercial fishing grounds, avoiding increases in limitations on the uses of these areas, and promoting fishing activities that are consistent with the principles of ESD. They aim to define prime fishing grounds in order to secure access to these areas and, in turn, assist in maintaining viable fishing industries. To outsiders an apparently high level of spatial access exists for commercial fishers but in reality this access can be overridden by almost every other piece of legislation (e.g. planning, marine protected areas and mining).

The single greatest benefit of PCFAs is that they help to deliver equitable treatment to the commercial fishing industry in the allocation of access to the marine environment. Better definition of spatial commercial fishing rights via PCFA declaration is consistent with a number of national and international statements and conventions on ecosystem management. The National Strategy for Ecologically Sustainable Development (Commonwealth of Australia 1992) has a goal to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations. The IUCN Commission of Ecosystem Management promotes conservation and sustainable use in an equitable way. The ecosystem management approach seeks to integrate the human element alongside the environmental elements, ensuring that planning of resource allocation within the countryside recognises both the environmental resource base and its sustainability for exploitation (Cloke & Park 1985; Shepard 2004). The application of PCFAs is consistent with the Inter-governmental Agreement on Ecologically Sustainable Development, the UN Convention on the Law of the Sea, and the UN Fish Stocks Agreement in that it addresses the issues of defined access rights (and attendant responsibilities), equity of access and community benefit.

Spatial security to a resource is a necessary facet of most rights and is a key factor in attracting and maintaining investment. The more complete are property rights, the more net benefits of resource use are captured,

eliminating externalities and losses of the common pool (Lidecap 2006). Until recently spatial security has not been in widespread use with regard to commercial fisheries, however marine protected area establishment, greater use of sanctuaries in existing marine protected areas, mining companies in an exploratory phase and a more assertive recreational fishing community have started to focus the commercial fishing industry's attention on its comparatively weak access right.

Additionally, a more secure fishing industry is less reliant on government intervention and support through periodic restructuring and adjustment programs as it has a greater incentive to be responsible for its own future.

CURRENT PROTECTION STRATEGIES FOR COMMERCIAL FISHERIES

Commercial fishing is the largest food-based hunter-gatherer business on the planet. The hunt uses increasingly sophisticated tools and, in many areas, with little or no management control. In some countries attempts have been made to better manage commercial fishing with mixed results. More secure access to fishery resources for the industry has been claimed to lead to more responsible fisher behaviour towards fish stocks and the marine environment generally. While improvements are occurring that improve security in fisheries management, such as individual quotas in Australia, New Zealand and Iceland, progress has been slow and usually has to be backed up with the force of law to be effective. Individual quotas typically deal only with allocation of the catch within the commercial sector. Subsequent security gains through share arrangements are undermined, and rendered insecure, by the non commercial fishing allocation that is not defined (Pearse 2006).

Existing fishing concessions have characteristics of 'rights' that differ greatly across commercial fisheries. The key characteristics of rights are that they can be owned by a person, are tradeable (including lease) to any other person, are limited in number, are easily divisible, are clearly specified, are enduring and cannot be resumed without full compensation (FAO 2006). Few fishing rights have even half of these recognised characteristics. The outcome is a relatively weak 'right' that other interests can easily override and/or provide little compensation for as resource allocation decisions to the marine environment are made. The process of marine planning has turned the tide against commercial fishers who now find themselves increasingly left with their 'rights' applying to those parts of the ocean others do not want. These are often less productive or remote areas that result in more marginal commercial fishing.

Establishing PCFAS

The establishment of PCFAs would require policy and legislative reform. Operational criteria to identify assess and declare PCFAs would also be needed.

Legislative and regulatory requirements for PCFAs would be similar to other zoning or protected area instruments. Generally, an amendment to the governing Fisheries legislation would be necessary, together with minor amendments to other relevant legislation such as planning and marine protected area law.

The identification process could involve the following criteria:

1. physical attributes - capability and resilience, sustainability, productivity and ecological vulnerability.
2. economic attributes - (suitability factors) value to the fishery, extent of use, regional, state and national importance, value to local or regional employment and economic development, markets and infrastructure.
3. historic and cultural values - importance to local and regional communities (e.g. coastal fishing villages)
4. impacts on threatened species.

The selection of PCFAs from nominated sites should include consideration of appropriate criteria and stakeholder and community input. Selection criteria should include, but are not limited to, the following:

1. social impacts - including social, indigenous and economic impacts on other uses (both existing and potential opportunities, including aquaculture), and potential impacts on regional and local plans.
2. existing management arrangements - Existing management of the fishery may not be conducive to PCFA establishment (structural adjustment, share arrangements, ability to manage area).

Determination of the size and number of PCFAs associated with any given fishery is fishery specific, and would require appropriate information to support the spatial extent of the fishing ground proposed for protection status.

Relationship with recreational fishing

It is not intended to use PCFAs to segregate or allocate commercial fishing and recreational fishing grounds. It follows that the declaration of PCFAs would not necessarily deny recreational anglers the opportunity of access to the area of interest.

Where conflict arises between recreational and commercial fishing sectors over the allocation of resources in PCFAs (with open access controls), resource allocation decisions would be guided by the need for consistency with the objectives of the PCFA in question. Allocation issues would require investigation and consideration on a case-by-case basis, with resolutions aimed at allowing conflicting sectors to continue operating successfully. However where conflict cannot be resolved over essential commercial fishing grounds PCFAs with closed access controls could be established as a means to provide security to commercial fishing through exclusive use by that sector.

Zoning mechanisms have often been used to segregate commercial and recreational activities in the marine and coastal environment and is an effective option for dealing with conflict associated with use (NRC 1997). This is certainly the case within Australia where, in some jurisdictions, recreational and commercial uses have been spatially segregated through the declaration of closures or zoning arrangements. For example, in the Great Barrier Reef Marine Park, some zones allow for recreational uses only. In New South Wales, 30 Recreational Fishing Havens have been established utilising fisheries management closures that exclude commercial fishing. Recently announced resource sharing arrangements in Commonwealth pelagic fisheries adjacent to W.A. is another example.

Relationship with marine protected areas

It is anticipated that the establishment of PCFAs will lead to increased support for marine protected areas, as a result of a reduction in opposition to their establishment from the commercial fishing sector. Internationally, opposition from the commercial sector is seen as one of the biggest hurdles to marine protected area establishment and is generated by concerns associated with the loss of important fishing grounds and the availability of fair compensation for such. PCFAs will provide commercial fishers with the confidence that important local and regional fishing grounds would be protected from zoning outcomes that might otherwise have affected commercial access.

Governments and marine protected area agencies and authorities acknowledge the economic, social and cultural values of important fishing grounds and seek to minimise impacts to these in policy and legislation governing protected area establishment and operation. Currently, impact minimisation is generally achieved by overlaying data associated with patterns of use and economic value with that depicting ecological value. The outcome of overlay analysis is the identification of sites of high conservation value in combination with low value to the commercial industry. In practice however, this is very difficult to achieve as data is generally deficient and time and resources required to adequately identify and interpret the value of fishing grounds are often limited. Minimising spatial impact to important fishing grounds is further complicated by arguments associated with conflicting use between user sectors.

The protection of important fishing grounds within PCFAs will greatly improve processes associated with the identification and establishment of marine protected areas and will help to achieve a balanced outcome when determining marine protected area management arrangements. The PCFA concept will provide commercial fishers with the capacity to proactively identify important fishing grounds and to have the location of these considered in the initial stages of the development of a system of marine protected areas. Consequently, political dilemma and stakeholder anguish

generally associated with marine protected area implementation should be alleviated, a major concern raised by the Australian Seafood Industry Council (ASIC 1999).

There is also no reason to consider the two types of reserve irreconcilable with each other. Marine protected areas could be established consistent with existing PCFAs. In such cases, or where an overlap results, the marine protected area would not affect the PCFA management arrangements, with one exception, discussed later.

Similarly PCFAs could also be established consistent with existing marine protected areas and declaration would not change the existing zoning arrangements of the marine protected area. However, any future changes that might result from reviews of the zoning plan governing use within the marine protected area would not be able to affect the PCFA management arrangements. This is an important issue to commercial fishers, who currently feel that further access restrictions and loss of fishing grounds could occur from recommendations arising as a result of marine protected area review. The introduction of PCFAs would alleviate industry's concern with regard to this issue.

Despite the PCFA concept requiring that they have general priority over marine protected areas there does exist a scenario under which a PCFA includes area/s that have unique conservation values and contain habitats and marine organisms not found anywhere else. In this rare circumstance a process must be defined that: ensures conservation issues are scientifically justifiable; assesses other locations and alternatives, the risks and impacts of fishing with regard to the conservation issue; and, delivers an appropriate conservation outcome that minimises changes to the management of the PCFA. Should a conservation issue result in the loss of the PCFA to the commercial fishing industry compensation commensurate with the value of the PCFA to industry would be justifiable, in line with precedents set by the establishment of marine protected areas.

Hurdles

There are three primary hurdles to be overcome to implement PCFAs; government reluctance to allocate more secure access rights, industry concerns about more narrowly defining where it has access to and concerns from other users of the marine environment about their rights being diminished. It is acknowledged that allocation is probably the most controversial aspect of the property right regime (Lidecap 2006) however, for those who look ahead these hurdles are largely academic as the allocation of marine areas is happening today. The only issue is to what extent the commercial fishing industry wishes to be involved with planning this change and how effective it will be. The alternative is that it continues to be on the receiving end of other people's ideas and reacting to them. This reactionary approach has not been successful to date and has drawn little sympathy from the Australian community.

Conclusion

This paper proposes the establishment of a suite of PCFAs to help secure the future of the Australian commercial fishing industry which currently has a weak and poorly defined access right. The proposal is based simply on the equitable allocation of access to the marine environment and equal security of access with other users via the relevant legislative instruments. It fundamentally applies a secure spatial component to commercial fishing access which is absent from almost all current commercial fishing rights.

PCFAs focus on those commercially productive areas of a fishery, which commonly make up only a small proportion of a defined fishery area. The challenge for industry is to agree to a spatial trade-off and for governments to provide a high level of legislative security for PCFAs and, in doing so, recognising that the allocation of marine resources must provide certainty and security for the commercial fishing industry.

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