GREENPEACE Briefing

Submission to the 6th Regular Session of the WCPFC Scientific Committee

URGENT Cuts and Area Closures needed to Preserve tuna stocks and Protect Biodiversity

July 2010

1. Introduction

The world's appetite for tuna exceeds our oceans' capacity for production.[1] Over the past decades Distant Water Fishing Nations became increasingly reliant on tuna originating from external waters for their tuna supplies and largely expanded their fishing fleets.[2] Migrating from ocean to ocean in search of rich tuna fishing grounds, the Western Central Pacific is today the greatest source of tuna for these foreign fleets. The overfishing of the regions bigeye and yellowfin stocks is the greatest threat facing the long-term sustainability of the Pacific's tuna fisheries. Catching, discarding and processing fish the way we currently do undermines the viability of the fish stocks, the marine ecosystem and the fishing industry itself. Efforts in the WCPFC to return Pacific bigeye and yellowfin tuna stocks to long-term sustainable levels and to protect the broader marine environment have failed so far.

A suite of measures is required to address the overfishing on regional tuna stocks, especially bigeye and yellowfin. It has been emphasized that only when a full suite of measures are adopted simultaneously, significant reductions in fishing mortality will be achieved, overexploited tuna species will be given the chance to recover and non tuna species will be granted adequate protection.[3]

The Scientific Committee must prioritise as a matter of urgency reducing fishing on bigeye and yellowfin and halting the destructive impacts of tuna fishing on marine ecosystems. A precautionary approach must be fast tracked for Pacific tuna fisheries to protect the vulnerable stocks, the industry and Pacific economies. To ensure the sustainability of stocks, **Greenpeace urges the Scientific Committee to recommend the following measures to decision makers attending the 7th annual session of the Western and Central Pacific Commission (WCPFC 7):**

1. Ban all tuna fishing in the four high seas enclaves between the Pacific Island Countries;
2. Implement an immediate and necessary 50% effort reduction in tuna fishing effort across the entire WCPO fisheries based on the average 2001-2004 levels;
3. Immediately ban the use of FADs in association with purse seine fishing;
4. Implement the ecosystem based approach to the management of tuna resources within well-defined precautionary limits.

2. Granting protection to the Pacific High Seas

Area based management is the cornerstone to the precautionary and ecosystem based approaches.[4] Its benefits are well summarised in the scientific consensus statement on marine reserves and marine protected areas

1 United Nations Environment Programme. The Future of Fish - How a Green Economy Can Avoid One of the Biggest Market Failures of All Time. UNEP Green Economy Report: A Preview.

2 Esteban A. and Crilly R. 2010. Fish dependence: The increasingly reliance of the EU on fish from elsewhere. New Economic Foundation. United Kingdom.

3 Further Consideration Of CMM 2008-01 With Respect To Bigeye Tuna SPC Paper presented to the 6th Regular Session of the Western and Central Tuna Commission. Papeete, Tahiti, French Polynesia 7-11 December 2009.

4 Intergovernmental Oceanographic Commission. 2009. Marine spatial planning: A step-by-step approach toward ecosystem-based management. Manual and Guides No. 53, ICAM Dossier No. 6.

released at the 2001 meeting of the American Association for the Advancement of Science,[5] and can be restated as follows:

a) Long lasting and rapid increases in abundance, diversity and productivity of organisms attributable to decreases in mortality, habitat destruction and to indirect ecosystem effects;
b) Reduced probability of extinction of marine species.

An increased use of area-based management measures would bring large benefits to both tuna resources and marine biodiversity in the region, as outlined below.

2.1. Expanding the benefits of area closures in the region

The closure of the two high seas enclaves to purse seine fishing from January 1, 2010 under Conservation and Management Measure 2008-01 began to address both the incidences of illegal fishing in these zones and overfishing of bigeye and yellowfin tuna. Similarly the recent agreement by The Parties to the Nauru Agreement (PNA) to close off additional high seas areas from January 1, 2011 warrants similar benefits.

However, such a measure is not sufficient to tackle the population decline for these species[6]. Firstly, the removal of purse seining effort must be followed by that of longlining in these areas. Additionally, in order to prevent relocation of effort from existing closures, Greenpeace calls for the closure of the two eastern high seas pockets to purse seine fishing by the Commission and the extension of the closure to longlining. This would provide a first step towards establishing fully protected high seas marine reserves in the four high seas enclaves.

2.2. Fighting IUU fishing

Greenpeace has been defending Pacific tuna stocks from plunder for many years. Our expedition and partner patrols with Pacific Island Countries have exposed criminal activity in the form of IUU pirate fishing activity on each ship tour. Greenpeace surveillance activities in high seas areas 1, & 2 during the FAD fishing closure period in 2008 again revealed IUU activity and substantial compliance irregularities[7] which illuminate the need for a closure of all four high seas enclaves to all forms of fishing, especially long-lining, and strengthening measures in high seas areas to deter and eliminate IUU fishing in the region.

Many opportunities exist for cheating the Pacific Island Countries of their marine resources. The high seas enclaves present a major loophole[8] in the regulation of fishing for the WCPO. The scarce resources available to monitor and control fishing activities are not sufficient to prevent the IUU fishing in the high seas enclaves. Transshipments at sea allow vessels to launder their catch unreported. This is why Greenpeace calls the Commission to agree on immediate ban on all transshipments in the WCPO.

The high level of IUU fishing in the region (estimated at 21-46%)[9] further compromises data used in scientific modeling and projections. The declared catches of only two of the largest high seas enclaves represent 10.7% of the overfishing from the WCPO.[10] Closing the high seas enclaves would make it significantly harder for IUU fishing vessels to operate and trade their products. Furthermore, the inadequate reporting of catches by fleets to coastal States, coupled with the lack of monitoring, control and surveillance measures and resources in the region, enables illegal vessels to operate side by side with legally registered vessels as well as facilitating unreported fish laundering.

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5 American Association for the Advancement of Science. 2001. Scientific Consensus Statement on marine reserves and marine protected areas. Annual Meeting of the American Association for the Advancement of Science. 17 February 2001.

6 Further Consideration Of CMM 2008-01 With Respect To Bigeye Tuna. SPC Paper presented to the SIXTH REGULAR SESSION of the Western and Central Tuna Commission Papeete, Tahiti, French Polynesia 7-11 December 2009.

7 See Plundering the Pacific at http://www.greenpeace.org/australia/resources/reports/overfishing/defending-our-pacific-2008-su

8 Flothmann S. et al. 2010. Closing Loopholes: Getting Illegal Fishing Under Control. Sciencexpress. 20 May 2010.

9 Marine Resource Assessment Group (MRAG) and the University of British Columbia Fisheries Ecosystems Restoration Research Fisheries Centre 2008. The global extent of illegal fishing.

10 http://www.wcpfc.int/doc/wcpfc5-2008-ip-13/evaluation-potential-bet-management-measures

2.3. Ecological significance of the four high seas enclaves

The four high seas enclaves featured meet the criteria for ecologically or biologically significant marine areas, developed by the Convention on Biological Diversity (CBD).[11] These include vulnerable, fragile and sensitive habitats such as tropical corals, shallow seamounts, upwelling zones and potential hydrothermal vent locations. Oceania is recognised as an extinction hotspot where human impacts on this open ocean system are largely the result of the industrial tuna fishing industry.[12] Kingsford et al. (2009) recommend 30-50% of the marine habitat be closed to fishing to avoid the collapse of stocks in Oceania.

Partidge (2009) reports key life history stages in the enclaves include migrating leatherback turtles *Dermochelys coriacea*; the possible presence of juvenile leatherback turtles; yellowfin tuna spawning activity; migrating green turtles *Chelonia mydas*; and breeding minke whales *Balaenoptera acutorostrata*. Threatened, endangered or declining species include: leatherback, green, olive ridley *Lepidochelys olivacea* and hawksbill *Eretmochelys imbricata* sea turtles; bigeye tuna; sperm whales *Physeter macrocephalus*; and frequent encounters with threatened and declining species, including pelagic sharks.

The closure of the four high seas enclaves would complement regional conservation initiatives such as the Phoenix Islands Protected Area, Papahanaumokuakea Marine National Monument, the proposed Marquises Islands marine reserve of French Polynesia, and the proposed Australian Coral Sea Heritage Park as well as initiatives on the way within the coral triangle area. The Parties to the Nauru Agreement decision to restrict purse seining in the high seas of the WCPO through licenses by January 1, 2010 is another commitment to conservation from these countries. These initiatives would contribute to the implementation of the Pacific Islands Regional Oceans Policy, which calls amongst other things for the development of precautionary management regimes; a transboundary approach to marine ecosystem management; and the conservation of biodiversity at local, national and regional scales[13].

Greenpeace urges the Scientific Committee to recommend to the Commission the closure of the four high seas enclaves between the Pacific Island Countries.

2.4. Building resilience, fighting climate change

The population dynamics and ecology of tuna are tightly coupled with biological[14] and physical[15] cycles. McIlgorm (2010) states the current and continuing rise sea temperatures is expected to disperse the fishery whilst maintaining an east west cycling of tuna distribution.[16] This environmental forcing is of critical concern to the future of the fishery as climate change threatens to significantly modify the predictability and habitable parameters of the Western Central Pacific Ocean.[17] Furthermore, climate change impacts such as shifts in age to maturity, size, death rates and shifts in the carrying capacity undermine effort and yield calculations upon which management and governance of these fisheries depend.

Article 192 of the Law of the Sea Convention requires all parties to conserve the highly migratory stocks using both the precautionary and ecosystem based approach. Ecosystem based management is a resiliency-based approach to climate change that aims to protect ecosystem features, reduce human impacts, maintain species and ecosystem diversity and establish functional refugia for stock recovery. Furthermore, the recent outcomes of the Fish Stock Agreement Review Conference calls on RFMOs to "strengthen efforts to study and address environmental factors affecting marine ecosystems, including adverse impacts of climate change and ocean acidification, and, where possible, consider such impacts in establishing conservation and management

11 Patridge E. 2009. High Seas Pacific Marine Reserves: a case study for the high seas Enclaves A briefing to the CBD's Expert workshop on scientific and technical guidance on the use of biogeographic classification systems and identification of marine areas beyond national jurisdiction in need of protection. Ottawa, 29 September–2 October 2009. A report for Greenpeace International.

12 Ibid.

13 CROP, 2005. Pacific Islands Regional Ocean Policy and Framework for Integrated Strategic Action. SPC: Noumea, New Caledonia.

14 Christensen, V. and D. Pauly. 1997. Placing fisheries resources in their ecosystem context. EC Fish. Coop. Bull., Vol. 10. pp. 9-14

15 Lehody et al. 2002. Predicting skipjack tuna forage distributions in the equatorial Pacific using a coupled dynamical bio-geochemical model, Fisheries Oceanography. Vol. 7. 317-325.

16 McIlgorm A. 2010. Economic impacts of climate change on sustainable tuna and billfish management: Insights from the Western Pacific. Progress in Oceanography Vol. 86. pp. 187–191

17 Lehodey et al. 2010. Preliminary forecasts of Pacific bigeye tuna population trends under the A2 IPCC scenario. Progress in Oceanography Vol. 86. pp. 302–315.

measures for straddling fish stocks and highly migratory fish stocks". Thus giving effect to Article 5(d) of the UNFSA.

Recent modelling suggests that tuna populations are highly responsive to changes in ocean temperature that will affect the currents and location of food sources.[18] The current modelling shows populations of skipjack and bigeye tuna are likely to be dispersed to the east.[19] Therefore the observed relocation of tuna biomass during el nino phenomenon experiencing a west – east migration during these periods and environmental forcing from climate change provides evidence and support for the eastern high seas enclave closures.

3. Urgent effort and capacity reductions are needed

The urgent need to reduce fishing effort and capacity on Pacific tuna stocks managed by the WCPFC, particularly bigeye tuna and yellowfin tuna, is widely recognised. Greenpeace has widely called for a 50% reduction in fishing effort across the WCPO fisheries based on average 2001-2004. There are simply too many vessels operating in the region chasing the last few fish. A significant capacity reduction scheme is urgently needed.

Since the last meeting of the scientific committee new information has been made available to WCPFC parties[20]. The Commission's independent science advisory body of the Secretariat of the Pacific Community (SPC) has projected the failure of CMM-2008-01 to meet its objective to achieve a reduction in fishing pressure on bigeye tuna. Modelling of the cuts needed to address these deficiencies found that a 50% reduction in longline catches from 2007 levels, an 80% reduction in Fish Aggregating Devices (FAD) effort from 2007 levels, and a 50% reduction in effort from the domestic fisheries in Indonesia and the Philippines for 2007 levels would be required to restore bigeye populations.[21] Greenpeace advocates the Scientific Committee recommends this suite of catch and effort reductions to the Commission as the necessary and immediate cut required to preserve tuna stocks.

Radically reducing fishing effort would not only ensure sustainability but also improve the economic performance of the fleets and returns to coastal States from the access agreements.[22]. A study by Kompas and Che (2006) shows that an effort reduction in the Pacific purse seine effort amounting to 68 % of effort levels in 2004 and smaller reduction in the frozen and fresh long-line fisheries in the short term would increase the profitability of the fishery by 30% over a 50-year planning horizon.[23,24] A necessary sharp reduction in fishing capacity provides an opportunity to negotiate access agreements that value the resource and transfer the food security and socio-economic and political risks associated with overfishing to flag States. These reductions need to be allocated equitably giving the coastal States the opportunity to also enter the fishery aligned with the Mauritius Strategy for the Further Implementation of the Barbados Programme of Action for the Sustainable Development of SIDS.[25]

In reducing capacity, priority should be given to those fishing methods and fleets, which fulfill environmental and social criteria such as low by-catch rates or being labor-intensive. Collective action by Pacific Island Countries to develop their own domestically owned and operated sustainable industries, using methods such as pole and line, that are suited for the use of coastal communities and negotiate equitable access fees for the remaining limited foreign fleets, is the best means of reaping sound socio-economic benefits from the resource. The UN FSA Review Conference agreed that RFMOs should "*encourage the identification o strategies which further assist*

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18 Lehodey P., I. Senina, J. Sibert and J. Hampton 2008. SEAPODYM.v2: A spatial ecosystem and population dynamics model with parameter optimization providing a new tool for tuna management. Fourth regular session of the Scientific Committee of the Western and Central Pacific Fisheries Commission, 11–22 August 2008, Port Moresby, Papua New Guinea. WCPFC-SC4-2008/EB-WP-10

19 Lehodey, P. I. Senina, J. Sibert, L. Bopp, B. Calmettes, J. Hampton and R. Murtugudde 2010. Preliminary forecasts of population trends for Pacific bigeye tuna under the A2 IPCC scenario. Special issue of the 1st international CLIOTOP Symposium La Paz, Mexico, 3-7 Dec 2007.

20 Further Consideration Of CMM 2008-01 With Respect To Bigeye Tuna. SPC Paper presented to the SIXTH REGULAR SESSION of the Western and Central Tuna Commission Papeete, Tahiti, French Polynesia 7-11 December 2009.

21 Ibid.

22 Bertignac M. 2001. Maximizing Resource Rent From the Western and Central Pacific Tuna Fisheries. Marine Resource Economics, Volume 15, pp. 151–177.

23 Tom Kompas and Tuong Nhu Che 2006. Economic profit and optimal effort in the Western and Central Pacific tuna fisheries. Pacific Economic Bulletin.

24 Grafton, Q, Kompas, T. and Hilborn, R. W. (2007) Economics of Overexploitation Revisited. Science. Washington: Dec 07, 2007. Vol. 318, Iss. 5856; p. 1601.

25 Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of SIDS refer - www.un.int/mauritius/.../Mauritius_Strategy_latest_version.pdf

developing States in particular the least developed and small island developing States in realizing the greater share of the benefits from the catch of straddling fish stocks and highly migratory fish stocks and in strengthening regional efforts to sustainably conserve and manage such stocks". Already 80 million cans of Pole and Line caught Pacific skipjack tuna are on pre -order as retailers seek products with a low rate of bycatch, unlike longlining and purse seining that uses FADs. Pole and line operations are being re-established in the Pacific regions to accommodate this demand for Skipjack products with low bycatch rates. Skipjack tuna caught by purse seiners using FADs is being rejected as unsustainable because of the catch of bigeye and yellowfin juveniles and other marine animals.

4. BAN the FAD, Protect biodiversity

The use of FADs in purse seine fisheries continue to be one of the biggest threats to the sustainability of tuna operations in the region.

Greenpeace's concerns are succinctly summarised by Bromhead *et* al, (2003), who state that "the current and expanding use of FADs with purse seine fisheries around the world appears likely to have a number of detrimental effects, both to the long-term sustainability of tuna fisheries, to the ecology of tuna species, and to a lesser extent, the ecology of other pelagic species."[26] A number of issues supporting a ban of FAD fishing are outlined below.

4.1. Minimise by-catch and protect threatened species

Ecological risk analyses of the WCPFC bycatch[27] have highlighted the deficiencies in existing Conservation and Management Measures to curb the decline of vulnerable non-target species.[28] In accordance with Article 5(e) and 10(c) of the Convention Parties must adopt conservation and management measures to minimize waste and discard of non-target species in particular endangered species with a view to restoring the populations above those which threaten reproduction.

In excess of 300 species from 96 families are commonly found associated with floating objects.[29] Observations of drifting FADs identified a consistent pattern of colonisation of aggregating species preceding the presence of tuna on FADs. The tuna were recognized as dependent upon the arrival of pelagic species before they were found in the vicinity of a FAD.[30] Thus FAD associated purse seine sets present a consistent threat to non-target species.[31] The most effective way of immediately reducing bycatch, given the fact that few effective mitigation techniques currently exist, is by area closures to all fishing and to reduce the threat of bycatch in fisheries. With 6/7 turtles[32] and ¾ of oceanic sharks[33] at risk of extinction action is needed immediately.

4.2. Protect juvenile tuna

Data presented by Korean researchers to the WCPFC Science Committee in 2009 showed that the use of FADs led to significant bycatch of juvenile bigeye and yellowfin tuna, marlin, barracuda, a whale shark, silky sharks, and Olive Ridley turtles.[34]

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[26] Bromhead D. et al. 2003. A review of the impacts of fish aggregating devices (FADs) on tuna fisheries. Final Report to the Fisheries Resources Research Fund. Bureau of Rural Sciences, Canberra, ACT, Australia. 122pp.

[27] Kirby D. 2008. Ecological risk assessment (ERA) Progress report (2007/8) and work plan (2008/9). WCPFC-SC4-2008/EBSWG-WP-1.

[28] Kirby D. 2009. Ecological Risk Assessment Implementation Report. WCPFC-SC5-2009/EB-WP-05.

[29] Castro J. et al. 2002. A general theory on fish aggregation to floating objects: An alternative to the meeting point hypothesis. Reviews in Fish Biology and Fisheries Vol. 11: pp. 255–277.

[30] Monero G. 2007. Fish behaviour from fishers' knowledge: the case study of tropical tuna around drifting fish aggregating devices (DFADs). Can. J. Fish. Aquat. Sci. Vol. 64 pp. 1517–1528.

[31] Taquet et al. 2007. Characterizing fish communities associated with drifting fish aggregating devices (FADs) in the Western Indian Ocean using underwater visual surveys. Aquat. Living Resour. Vol. 20. pp. 331–341.

[32] www.iucnredlist.org

[33] Dulvy, N. et al. 2008. You can swim but you can't hide: the global status and conservation of oceanic pelagic sharks and rays. Aquatic Conservation: Marine and Freshwater Ecosystems Vol. 18(5) pp. 459-482.

[34] An et al. 2009. Effects of set type on catch of small-sized tuna by the Korean tuna purse seine fishery in the WCPO. Scientific Committee Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. Western and Central Pacific Fisheries Commission (WCPFC), Kolonia, Pohnpei. WCPFC-SC5-2009/FT-WP-02.

The Scientific Committee last year noted "the continued high fishing mortality on juvenile bigeye due to associated purse-seine sets and the fisheries of Indonesia and the Philippines". According to the University of Hawaii's pelagic fishing programme, FADs used by purse seine nets are considered a major factor in pushing yellowfin and bigeye stocks towards depletion.[35] The Organisation for the Promotion of Responsible Tuna Fisheries (OPRT) also reported the devastating impact of the use of FADs on the longline catch and called for a ban on the use of FADs in association with purse seine vessels as part of their presentation to Parties at the KOBE bycatch mitigation workshop in Brisbane. Given the higher commercial value of yellowfin and bigeye tuna, it is not only environmentally destructive, but economically short-sighted to be killing the young tuna, particularly when this is taking place as a result of targeting the less-valuable skipjack tuna.

Although skipjack tuna stocks are considered to be more resilient to increased fishing effort than larger tuna species, studies show that FAD fishing could also be negatively influencing the long-term sustainability of this fishery. Skipjack tuna of all life stages inhabit surface waters and are therefore vulnerable to FAD based fisheries throughout their life cycle. It has been suggested that skipjack tuna are already both growth-overfished and recruitment-overfished in some areas of the East Atlantic as a result of FAD use.[36] The removal of large numbers of adult skipjack tuna could cause short-term recruitment-overfishing, whereas the removal of large numbers of juveniles may lead to a smaller spawning stock in future years. It is possible that the use of FADs could also contribute to recruitment- and growth-overfishing of skipjack tuna in the Pacific.

Greenpeace believes that the current ban period for all objects that are deployed as FADs by purse seine fisheries is insufficient and a total ban on FADs should be in place.

4.3. Distorting statistics

The uncontrolled use of fish aggregating devices (FADs) by purse seine fleets has increased effort and further undermined efforts to estimate and manage stock levels. Given the increased efficiency of purse seine fleets in finding and capturing skipjack tuna due to the use of FADs, and hence improved CPUE, the global catch of the species have been steadily increasing in all oceans. The use of FADs, however, distorts CPUE estimates of the fisheries and hence population estimates. The SPC, in its review on the effectiveness of CMM 2008-01 to achieve its objectives stated that the increase in purse seine effort allowed under the measure, and the increase in purse seine catchability (fishing mortality per unit effort) that has occurred since 2001-2004, is not sufficiently offset by the FAD and HSP closures to reduce purse seine fishing mortality below 2001-2004 average levels[37]. Accordingly, historically poor data coupled with the relative ease with which fishers can continue to find skipjack using FADs, leaves very significant uncertainties attached to the precise status of skipjack stocks.

4.4. Ecological concerns and precaution

Recently it has been suggested that FADs could be acting as 'ecological traps' for tuna[38]. Evidence presented by Hallier & Gartner (2008) showed that FAD- associated tunas were less healthy and these devices led the tuna to less appropriate habitats[39]. This work is supported by Castro et al.'s (2002)[40] conclusions of the lack of benefits fish could obtain from artificially deployed FADs compared with natural objects drifting to planktonic convergences of accumulated food and routes for the dispersion of larvae and eggs.

Dempster (2004) also presented concerns that association of tuna with FADs may disrupt migration patterns and lead to the modification of feeding regimes, growth and survival rates, and population size-structures.

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35 University of Hawaii (2008). The Pelagic Fisheries Research Program Home website> Project descriptions> Biology> The Associative Dynamics of Tropical Tuna to a Large-Scale Anchored FAD Array. The Pelagic Fisheries Research Program (PFRP), University of Hawaii.

36 Bromhead D et al. 2003. A review of the impacts of fish aggregating devices (FADs) on tuna fisheries. Final Report to the Fisheries Resources Research Fund. Bureau of Rural Sciences, Canberra, ACT, Australia. 122pp.

37 Further Consideration Of CMM 2008-01 With Respect To Bigeye Tuna SPC Paper presented to the SIXTH REGULAR SESSION of the Western and Central Tuna Commission Papeete, Tahiti, French Polynesia 7-11 December 2009.

38 Hallier & Gartner 2008. Drifting fish aggregation devices could act as an ecological trap for tropical tuna species Mar. Eco. Prog. Ser. Vol. 353 pp. 255–264.

39 Ibid.

40 Castro J. et al. 2002. A general theory on fish aggregation to floating objects: An alternative to the meeting point hypothesis. Reviews in Fish Biology and Fisheries Vol. 11: pp. 255–277.