THIRD REGULAR SESSION
Apia, Samoa
11-15 December 2006

DISCUSSION PAPER ON ALLOCATION ISSUES

WCPFC3-2006/15
10th November 2006

Prepared by the Secretariat

1. The Second Regular Session of the Commission, at Pohnpei, Federated States of Micronesia, 12-16 December 2005 requested the Executive Director to produce a discussion paper on allocation issues within the WCPFC for circulation to Members, Cooperating Non-Members and Participating Territories in advance of the Third Regular Session of the Commission. The Terms of Reference for this task, developed on the basis of the advice of the Second Regular Session, are presented at (Attachment A).

2. Following an international call for expressions of interest the Marine Resource Assessment Group, United Kingdom (MRAG) was awarded the assignment. The report prepared by MRAG is presented at Attachment B.

3. WCPFC3 is invited to discuss the report prepared as a result of the request from the 2005 Session of the Commission and provide guidance in respect of a future programme of work to give effect to Article 10(3) of the WCPF Convention.

Attachment A

WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION
PO Box 2356
Kolonia
Pohnpei 96941
Federated States of Micronesia
www.wcpfc.org

SHORT TERM CONSULTANCY OPPORTUNITY

Call for Expressions of Interest

Considerations in allocating WCPO tuna resources

Introduction

The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean entered into force in June 2004 creating one of the first regional fisheries management organizations to be established since the adoption in 1995 of the UN Fish Stocks Agreement.

The objective of the Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the 1982 United Nations Convention on the Law of the Sea and the 1995 UN Fish Stocks Agreement. For this purpose, the Convention establishes a Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC). A small Secretariat is based in Pohnpei, Federated States of Micronesia.

The Convention applies to all species of highly migratory fish stocks (defined as all fish stocks of the species listed in Annex I of the 1982 Convention occurring in the Convention Area and such other species of fish as the Commission may determine) within the Convention Area, except sauries. Conservation and management measures under the Convention are to be applied throughout the range of the stocks, or to specific areas within the Convention Area, as determined by the Commission. The Commission currently has 25 Members and two Cooperating Non-Members. Tokelau and the three Pacific Overseas Territories of France are Participating Territories within the Commission. Additional information concerning the Commission, including copies of recent decisions, is available from www.wcpfc.org

Both the 1995 UN Fish Stocks Agreement (Article 10) and the WCPFC (Article 10) provide for the development of criteria for the allocation of the total allowable catch (TAC) or total level of fishing effort (TAE). At Article 10(3), the WCPFC outlines 10 factors that will be considered, *inter alia*, in allocating the TAC or TAE in the Convention Area. At its Second Annual Session in December 2005, the Commission decided that, on the basis of increasing concern over the capacity of WCPO tuna resources to sustain current levels of catch and effort, particularly in relation to yellowfin and bigeye tuna, there is a need for the Commission to set sustainable catch and/or effort limits and to start examining options for allocating participatory rights to the region's tuna resources.

The Commission is inviting Expressions of Interest from suitably qualified experts to undertake a short term consultancy to develop a discussion paper on allocation options within WCPFC for consideration at the Third Regular Session of the Commission in December 2006. The assignment will be undertaken by an individual or team with an extensive understanding of fisheries management, WCPO tuna fisheries, tuna industry operations and investment in the WCPO, tuna fleet dynamics, WCPFC Members' role in WCPO tuna fisheries, RFMO and other institutional arrangements, international and regional developments in relation to the conservation and management of highly migratory fish stocks, and the evolving role of the WCPF Commission.

Objective of the assignment

To prepare a discussion paper for Members of the WCPF Commission that details issues and considerations relating to the allocation of tuna resources within the WCPFC Convention Area.

Scope

Under the direction of the Executive Director, the scope of work for this assignment will include:

- Overview of relevant provisions of international law relating to the allocation of access to fisheries resources – including the rights and obligations of coastal states, flag states, fishing states and the role of RFMOs;
- Overview and assessment of the experience of other RFMOs, particularly tuna RFMOs, in addressing participatory rights and allocation;
- Analysis and discussion of the factors listed in Article 10(3) of the WCPF Convention relating to allocation criteria;
- Discussion of potential models for allocation within WCPFC;
- Identification of information needs for the Commission to effectively allocate tuna resources within the Convention Area and an appraisal of gaps, if they exist, including a means to address those information gaps; and
- An outline of options, strategies and implementation considerations, including in relation to the role of the WCPFC Secretariat, for the Commission to make progress on allocation of tuna resources within the Convention Area.

Outputs

The principle output of the assignment will be a discussion paper on options for implementing strategies for addressing participatory rights and the allocation of tuna resources within the WCPFC Convention Area under the auspices of the WCPF Commission for the Third Regular Session of the Commission.

Schedule of Work

Approximate dates	Task	Approximate Effort [days]
April/May	Background research, initial consultation and initial drafting of options and strategies.	10
June/July	Further consultation and refinement of draft report	14
August	Presentation of final draft report to Executive Director of WCPFC for comment	
September	Comments from Executive Director received and incorporated into draft as appropriate	2
October	Final Report submitted to Executive Director for circulation to Commission members	
December	Presentation of Final Report to the Third	4

	Regular Session of the Commission	
		30 days

Expressions of Interest

Written Expressions of Interest in this assignment should be submitted to the Executive Director, Western and Central Pacific Fisheries Commission, PO Box 2356, Kolonia, Pohnpei 96941, Federated States of Micronesia by close of business Friday 24th March 2006. In addition to providing a capability statement summarizing previous or current work of direct relevance to this assignment, the Expression of Interest should include detailed resumes for principal resource people that will be actively involved in the assignment, an outline of costs associated with the provision of their services, and contact details for at least two professional referees.

Attachment B

DISCUSSION PAPER

Allocation issues for WCPFC tuna resources

A Report for the WCPFC Secretariat

by

MRAG Ltd[1]

October 2006

Marine Resources Assessment Group Ltd
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London, United Kingdom

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Executive Summary

The introduction to this Executive Summary is followed by a number of sections covering very specific problems that will be encountered by the Commission. Options for allocation schemes which solve these problems are described.

At the end of each section a number of bullet points in a dotted box summarize the major issues that the Commission will need to address. At the end of the Executive Summary these major issues are collected into a table describing a tabular *conceptual map* to assist the Commission in developing its allocation scheme.

Throughout the Executive Summary, cross reference is made to relevant pages of the main report. A glossary is provided on page 16.

Introduction [pp 15 - 35]

1. This discussion paper is prepared for Members of the WCPFC to assist them in their deliberations concerning tuna allocation issues within the WCPFC Convention area. The study provides an overview of international law pertaining to the allocation of fisheries resources and the experience of other Regional Fisheries Management Organizations RFMOs as well as considering the core issues in allocation of WCPO resources.

2. Fisheries without allocation schemes are often characterized by “Olympic” fisheries, governed by a single catch or effort limit but with no limit on the capacity of fishing vessels. These fisheries very often experience an economically damaging “race to fish”, usually leading to overexploitation, overcapacity and an incentive to misreport. Without allocation the benefits from exploitation of the resource accrue only to the fishers and to coastal states when these fishers are licensed to fish in their waters; other coastal states gain no benefit.

3. Allocation schemes offer participatory rights to Members, and can lead to more stable fisheries. The recognition of a right to fish a certain proportion of the available quota or effort usually builds confidence and leads to greater compliance amongst fishers. Factors other than simply the availability of fish in an EEZ, or the possession of a fishing fleet, can be taken into account in allocation. However, provision must be made for clear, equitable allocation that can accommodate the entry of new players and penalizes non-compliance.

4. Quite apart from the advantage of moving towards allocation, the Commission has a duty to make overall allocation decisions, including global TAC or level of fishing effort [*for legal review see pp 17 - 27*]. The Commission is also responsible for setting criteria for allocation on the basis of the list in article 10(3). Commission allocation decisions and formulae must take into account legitimate EEZ and sub-regional measures such as the Palau Arrangement, and must ensure compatibility between management measures applied on the high seas and with EEZs.

5. The experience of other RFMOs with allocation has been mixed [*for RFMO review see pp 28 - 35 and Annex, pp 61 - 74*]. However, it is clear that to ensure a successful outcome the Commission will have to address the following issues:

- Assuring an acceptable and equitable initial allocation;
- Within sustainable resource limits, providing mechanisms for the expansion or contraction of the interests of Members;
- Dealing with new entrants;
- Addressing IUU fishing; and
- Rewarding good compliance with security of participation, and penalising poor compliance with loss of participatory rights.

Allocation criteria and considerations [pp 36 - 38]

6. Table A1 presents the WCPFC criteria (Article 10, paragraph 3) and a summary of the practical issues that might need to be considered by the Commission in implementing them.

Table 1A. Practical issues relevant to the application of the different allocation criteria in Article 10 (3).

Article 10 (3) provisions	Practical issues relevant to allocation
10 (3) a. the status of the stocks and the existing level of fishing effort in the fishery;	Status of the stock in relation to MSY or an alternate agreed upon target. Catch and effort data, Catch at age, Migration data, Size frequency of fish, Maturity data, Natural mortality, Growth, Species compositions of catches for analyzing species interactions
10 (3) b. the respective interests, past and present fishing patterns and fishing practices of participants in the fishery and the extent of the catch being utilized for domestic consumption;	Commercial catch data by gear type. Development plans including aspirations for a fishing fleet. Landing data at the village level and national level. Fish consumption data.
10 (3) c. the historic catch in an area;	Catch data of commercial, recreational and artisanal fisheries. Social and cultural importance of tuna or bycatch species. Analysis of the implications of various historical time frame options. Resolution of catches by area, year, season, species, flag state and gear.
10 (3) d. the needs of small island developing States, and territories and possessions, in the Convention Area whose economies, food supplies and livelihoods are overwhelmingly dependent on the exploitation of marine living resources;	Consumption and export data relative to GDP. Description of economy to determine importance of fishery. GIS analysis of land mass and EEZ . Licence/access arrangement and fees.
10 (3) e. the respective contributions of participants to conservation and management of the stocks, including the provision by them of accurate data and their contribution to the conduct of scientific research in the Convention Area;	Attendance at RFMO meeting even as an observer. Submission to RFMO of evidence of implementing conservation and management measures. Evidence of scientific surveys and research.
10 (3) f. the record of compliance by the participants with conservation and management measures;	Preparation of standard compliance tables. Submission of reports by Members and cooperating parties. Financial contribution to WCPFO, payment of assessed contribution on time.
10 (3) g. the needs of coastal communities which are dependent mainly on fishing for the stocks;	Landing data at the village level and national level. Fish consumption data. Fish exports and contribution to GDP. Licence/access arrangement and fees
10 (3) h. the special circumstances of a State which is surrounded by the exclusive economic zones of other States and has a limited exclusive economic zone of its own;	Legal delineation of EEZs, GIS data on the size of EEZs. Distribution of fish stocks in the region. Relative dependence data, contribution to GDP
10 (3) i. the geographical situation of a small island developing State which is made up of non-contiguous groups of islands having a distinct economic and cultural identity of their own but which are separated by areas of high seas;	GIS data on the relative size of land masses and EEZs. Distances from center of administration to districts. MCS costs for patrols. Distribution of fisheries resources within the island groups. Contribution to GDP.
10 (3) j. the fishing interests and aspirations of coastal States, particularly small island developing States, and territories and possessions, in whose areas of national jurisdiction the stocks also occur.	Recent commercial catch data. Development plans concerning fleet size, capacity, port facilities and associated industry development (cold storage, canning factories, etc), investment in fishery.

Allocation units [pp 38 - 42]

7. The existing situation is framed by the Conservation and Management Measures (principally CMMs 2005-01, 02 and 03) and existing regional arrangements, of which the Palau Arrangement Vessel Day Scheme is one. These measures effectively introduce an effort management system for purse seine and albacore fisheries and a catch management system for bigeye and yellowfin tuna within an overall capacity limitation.

8. Almost all the tuna fisheries in the Western and Central Pacific take more than one species of tuna. Designing a management system that takes this into account will be the first step of developing an effective allocation scheme.

9. Assessments of the various species and stocks of tuna should result in the determination of target fishing mortalities which will ensure that the stock remains at or above the levels that will deliver Maximum Sustainable Yield. These target fishing mortalities can be expressed as either allowable effort or allowable catch.

10. There are several solutions to the multispecies dilemma, presented in order of increasing complexity.

    - catch or effort limits could be set for each target species and gear, and allocated to CCMs by fishery/gear type with an allowable bycatch limit also set for each fishery/gear.

    - species-specific catch or effort limits could be set for the WCPO as a whole and allocated to CCMs by species. CCMs would have to stop fishing once they reached their catch or effort limit of any species, but could adjust their fishing methods to maximise catch value. This system could operate within an overall limitation on fishing effort or capacity such as is indicated by the current conservation measures.

    - effort limits could be set for the WCPO as a whole by species, and allocated to CCMs for the WCPO as a whole unattributed by species. Within this global allocation fishing with different gears would carry different weight to reflect their relative catch rates of different species. For instance, one longline day could represent 20 BET units, 5 YFT units and 0 SKJ effort unit, whereas one purse seine day fishing on FADs could represent 5 BET units, 5 YFT units and 10 SKJ units. This weighting could also take into account the life history stage of the fish caught in different fisheries.

11. The data to establish these allocation schemes are available, but there is no obvious single solution – there may be different solutions for different species or fisheries. We would suggest that an appropriate way forward would be to request advice from the Scientific Committee on which method of management would be most appropriate for the different species, fisheries and gears. The use of simulation modelling in the framework of a Management Strategy Evaluation would be an appropriate mechanism to investigate the performance of different options.

12. In summary, The Commission might address the following questions:

- Can sustainable effort/catch be defined for each species, and how has this historically been distributed between fleets/gears (such as purse seine, pole and line etc)?
- Should units be allocated by species or by fleet/gear or both?
- Should the units of allocation be catch limits or effort limits? Which is most appropriate for which species or fleet/gear?
- How will the allocation scheme deal with mixed fisheries? For instance, if an effort scheme is used for the purse seine part of the skipjack fishery, will bycatch be regulated by a limit on use of associated or unassociated sets, or by restricting effort using the different fishing methods?
- Are there some species and fleet/gear types that will be more tractable to allocate in the short term, and should the Commission concentrate on these?
- What associated monitoring methods are needed with each scheme, and how might the schemes be implemented and managed?

Eligibility for allocation [pp 42 - 43]

13. We assume that an important pre-requisite for a party to receive allocation would be that the party is a CCM (Commission Members, Cooperating Non-Members and participating Territories). Therefore one of the most important issues to be considered is how a non-Member can become a Cooperating non-Member, and what obligations this then carries (Article 32 (4)).

14. CM-2004-02 has given the lead in addressing this issue, in that

    - Cooperating non-Member status is granted annually;
    - Decisions on granting non-Member status will take into account compliance (both when fishing in the Convention Area and the waters of other RFMOs), the state of the stock and the existing level of fishing effort in the fishery;
    - Cooperating non-Member status will not be granted if this will lead to excessive fishing capacity in the Convention Area.

15. An important secondary consideration might be that the Member should be contributing to the work of the Commission, either financially or in kind, and be complying with the conservation measures of the Commission and the objectives of the Convention.

16. Various approaches could be considered for introducing a compliance element into the allocations: for instance a penalty for exceeding catch or effort quota which might lead to a reduction of twice that amount in a following year; or a penalty for non-compliance with conservation measures as a whole.

17. There are many possibilities, depending upon what the Commission regards as important, and most will require some measure of compliance assessment. We suggest that this issue be put before the Technical and Compliance Committee. In particular, the important questions would be:

- Under what conditions will non-Members be considered to be cooperating non-Members, and under what conditions should CCMs be eligible for allocation of fishing opportunities?
- Are there some issues of non-compliance that the Commission regards as being more serious than others, and which should lead to greater penalties?
- How would the Commission like to see penalties exercised, through the temporary or permanent reduction in allocation and fishing opportunities, of through financial reparation?
- Should CCMs receive similar treatment for non-payment of subscriptions to the Commission?

Basic allocation options [pp 44 - 48]

18. There are many possible allocation schemes, and we have identified three simple examples.

    a.1. Flag State Allocation: Allocating to CCM on the basis of their historical catch, or historical effort. This is the current approach for longline and albacore fisheries. In general, this will benefit DWF fleets and disadvantage coastal States, but it may the only sensible option with resources that are mostly caught on the high seas.

    a.2. Area-based Allocation: Allocating to CCM on the basis of the historical catch, or historical effort in their EEZ. This is the current approach for the purse seine fishery and attributes priority access to resources to CCMs in whose jurisdiction they occur. This will benefit coastal States but would not be able to cope with historical high seas catches.

    a.3. A hybrid scheme, allocating to coastal States on the basis of historical catch (or effort) in their EEZ; and to DWF CCMs allocating the remaining high seas catch or effort in proportion to their historic catch (or effort) on the high seas or more generally within the Convention Area. This would benefit coastal States and might disadvantage DWF CCMs that have a history of fishing in EEZs rather than the high seas.

19. Various more complex schemes could be considered. For instance, a modification of scheme a.3 might see less than 100% of the historical catch in an EEZ allocated to the coastal State as a fishing nation, with the rest being allocated to the foreign fleets that have traditionally fished in the coastal state's EEZ. Or the initial allocation could consider allocating only 20% of the historical catch in an EEZ to the coastal state, and allowing this to rise incrementally over a number of years in line with the aspirations of the coastal State (including its aspirations as a developing country, territory or possession).

20. Within the hybrid scheme there is considerable scope for addressing other aspects of Article 10 (3). For instance, the gradual implementation of a coastal state allocation could be conditioned on the relative dependence of coastal communities on the marine environment (10 (3) d, g), the extent to which the coastal state is implementing measures in its own zone consistent with WCPFC decisions or complying with conservation measures elsewhere (e, f), or the extent to which states are attempting to develop their aspirations (h, I, j). There may also be a need to consider a minimum allocation for very small states or those which would otherwise receive a disproportionately low quota (h).

21. Allocation might take the distribution of the stock into consideration as well as the distribution of catch. Any allocation based on catch or stock distribution by area must use a historical reference period which captures the extremes of distribution of tuna in el Niño and la Niña years. Identifying an appropriate period will therefore require input from the Scientific Committee.

22. The key questions that the Commission will need to address to establish an appropriate allocation system:

- What balance will be given between allocations to CCMs based on past fishing history and allocations based on the distribution of fishing by area, including in coastal State EEZs?
- In an area-based allocation, how much of the historical effort or catch in an EEZ should be credited to the coastal state, bearing in mind that tuna are mostly migratory between different areas, and how much should be attributed to the flag states that have undertaken the fishing?
- Should coastal states be given allocations based only on the catches in their EEZ, or should an allocation include catches by their vessels outside their EEZ?
- Should DWF CCM allocations consider the total catch or effort by DWFs or just their high seas or EEZ effort?
- Should the same scheme be used for each fishery and species type?
- Should there be a minimum viable allocation for application to very small states, or states with low historical fishing interest but who come under some of the other categories of Article 10 (3)?

Attribution and transfer of allocation rights [pp 49 - 53]

23. An allocation scheme will not only have to decide the appropriate allocation for all CCMs, but where and under what conditions such catch can be taken and transferred, rented or traded. Two quite different solutions to this problem could be:

    - At one extreme, allocations might be restricted to zones, so that a coastal State can only take its allocation in its zone, and a DWF nation could only take its catch on the high seas. If a coastal State was unable to take its quota within its EEZ it might transfer some of it to the DWF fleets that have traditionally fished in its waters, or to vessels from any other CCM, which could then fish its quota in its waters subject to the usual licensing arrangements.

    - Alternatively, CCMs might be free to take their quota anywhere. In the event that coastal states have received more quota than they can fish themselves, they would be able to transfer part of their quota to another CCM to take on their behalf anywhere in the Convention Area. As before, access to EEZs would still be controlled by the usual licensing arrangements.

24. Both these options consider the need to allow transfers of quota. The migratory nature of tuna also makes this important, but an additional advantage of a transfer scheme is that it would allow small island developing and other states to engage in or benefit from tuna fisheries across the Convention Area. For instance, the majority of resources in their EEZ might be accessible only to purse seine fisheries, but they may wish to pursue their developmental aspirations in longline or pole and line fisheries elsewhere in the Convention Area. Quota transfers would make this possible.

25. Transfers[2] could be simple exchanges or have some rent attached to them. This would, for instance, mean that CCMs could allow other CCMs to rent quota from them. Eventually permanent trades might be allowed. However, we would suggest that given the complexity of a transfer system it would be sensible initially only to allow annual transfers, but longer term transfers might be possible later, perhaps along the 3-year moving average designed for the Vessel Day Scheme. Some limit on transfers may have to be imposed to avoid concentration of effort in particular areas or times.

26. Some of the advantages and disadvantages of the various allocation schemes, considering both zonal and CCM allocation, and combining allocation with an option to transfer quota, are shown from the perspective of fishing states and coastal States in Table A2.

Table A2. advantages and disadvantages of the schemes with an option for transfers of quota, from two differing points of view (see paragraph 18).

Para 18 category	Fishing State perspective	Coastal State perspective
a.1	This scheme gives most credit and priority access to historic fishing states. Access to EEZs would continue to be by access agreement and licences	Coastal States with little historical fishing activity will get few rights of priority access, but would still control access to their EEZs and derive revenue therefrom.
a.2	If allocation is made on a zonal basis, access to EEZs would still be subject to access agreement and licences. If allocation is made on a CCM basis, access would require renting quota from the coastal State. Access to high seas would be unaffected and still Olympic in nature.	Coastal States would get priority access of their resources. If allocation is made on a CCM basis they would need to arrange rental and licensing agreements. coastal States would be able to expand their domestic activities, but not onto the high seas where they would not have historical rights.
a.3	All resources would be allocated, and it would be possible for fishing nations to transfer and rent quota from coastal States and each other. Access and licence fees would still be due if quota was to be taken, or rented, from within EEZs. Fishing states could either expand or contract their interest in different fisheries through transfers whilst maintaining their long-term historical allocation rights and revenue.	Coastal States would have equal rights to use their quota as would fishing nations, including expansion of their activities into high seas waters and participation in fisheries not normally found in their waters. It would also allow rental of quota and complete flexibility in fishing opportunities. However, a more complex administrative system would be required.

27. We suggest that the Commission needs to consider the following issues:

- Whether allocated rights will have zonal restrictions or may be fished by all quota holders anywhere in the Convention Area, or whether there should be other, perhaps variable or transitional arrangements on the rules over where CCMs could take their allocated quota.
- Whether allocations may be rented, transferred, or traded, on an annual or multianual basis, and if so what proportion of quota may be traded.
- Whether any transfers, or trades, should be permanent trades or whether they should simply be temporary rents.

[2] We use here "transfer" to mean temporary exchange of an allocation or part-allocation, including renting such allocation to a third party. The allocation is a right to a proportion of the available fishing effort or catch. We use "trade" to mean permanent purchase of, or exchange of, such allocation.

New Members and special issues [pp 53- 56]

28. It is essential that the Commission gives explicit attention to the problem of new Members. Ignoring this problem will encourage non-compliance and the development of IUU fishing within the Convention Area. Article 32 explicitly encourages non-Members to become Cooperating non-Members.

29. Fishing effort and capacity should not be allowed to increase beyond what is sustainable as new participants are added. This means that there are relatively few options for allowing new Members to receive allocation:

    - allow them to access only under-developed resources
    - allow them to participate only under charter, or through quota transfers
    - accommodating them within existing allocations, either through existing Members voluntarily giving up some quota or selling (trading) allocation rights to new participants
    - set aside a portion of the quota (eg 10%) for future use by new participants or the interests of developing countries, allowing them to rent quota from the Commission in the first instance. Fishing opportunities might be restricted to the high seas to further discourage competition with existing fisheries and lead to other conservation benefits.

30. In making a decision on this issue, the Commission should consider, primarily, which option will create the greatest incentive for compliance and participation by non-Member states. More models are given in the body of the report. In particular, the Commission will have to decide:

    - Under what conditions new entrants are allowed to become cooperating non-contracting parties and / or Members;
    - Under what conditions cooperating non-contracting parties or new Members are allowed to participate in allocation schemes;
    - How to allow the introduction of new participants without compromising conservation objectives;
    - What transfers or trades of quota are allowed to enable the participation of cooperating non-contracting parties or new Members in fisheries?

Negotiation facilitators [p 57]

31. There are some circumstances where management decisions may disadvantage some groups of nations within the Commission and advantage others. For instance, reducing purse seine fishing effort to conserve BET and YFT would disadvantage CCMs dependent upon purse seine income, either from fishing or licensing. Transfer of benefits including payments between groups of Members may be necessary to share the burden of such conservation measures.

32. With the various new schemes outlined above, including the ability to rent/transfer quota, the possibilities for realizing additional compensatory resource rents increases substantially. For instance, instead of offering outright payments, the current catches of juvenile bigeye and yellowfin tuna in coastal State waters could be considered as

part of the total catch and therefore included in the overall allocation for those species.

33. The Commission needs to consider these issues.

Review [p 57]

34. Given the need to accommodate new participants, the changing fishing aspirations of Members and the implications of different management measures, the Commission may wish to agree the general principles of an allocation formula, and an initial formula for a fixed period with review, rather than a fixed, one-time allocation. The would allow for periodic review of the allocations to take account of changing membership, the changing aspirations of Members, changing management priorities and compliance issues.

35. We would suggest that such review be considered only in the medium to long term, for instance 10 years.

Conceptual map [p 59]

36. To assist the Commission with its considerations we offer the following conceptual map. We would suggest that there are a set of issues that need to be addressed as a first priority (1) and a set of issues that are not so urgent, and may need to await decisions on the first priority list (2). We also indicate, in Table A3, likely sources of advice on the various issues.

Table A3. Conceptual map for developing a Western and Central Pacific Fisheries Commission Allocation Scheme.

Priority	Issue	Issues identified in this paper	Solutions sought from
1	Units of allocation	Should allocation be by catch units or effort Units? Should units be allocated by fishery/gear, by species or globally, or are there different approaches for different species? How will mixed fisheries be considered?	Scientific Committee, perhaps using Management Strategy Evaluation, to establish the most workable solution for all or individual fisheries.
	Eligibilty for allocation	How do non-Members become cooperating non-Members and what obligations do they have? How will issues of compliance, research and data reporting be introduced into allocation considerations?	Commission for policy. Technical and Compliance Committee to establish the principles of compliance assessment.
	Basic allocation options	How will a balance between fishing nations and coastal states be made? Should allocation be based on flag state or area catch histories? What transitional arrangements might be appropriate? How will the aspirations of small island states and developing states be incorporated? Is there a minimum viable allocation?	Technical and Compliance Committee to establish a method of incorporating the various aspirations of all states.
2	Attribution and transfer of allocation rights	Should allocated rights have zonal restrictions, or be available for fishing by a CCM quota holder anywhere in the Convention Area? Should CCMs be allowed to rent, transfer, or trade quota, on an annual or multianual basis, and if so what proportion of quota may be traded?	Commission in respect of principles. Scientific Committee in respect of the distribution of effort and conservation of species.
	New Members and developing country interests	How can non-Members become Members? How can new participants be introduced without compromising conservation objectives? What arrangement will generate greatest compliance from non- Members?	Technical and Compliance committee.
	Other issues	In certain circumstances will negotiation facilitators be useful? Should there be a periodic review of the allocation schemes that are finally produced?	Commission Scientific Committee Technical and Compliance Committee

Introduction

This discussion paper is prepared for Members of the WCPFC to assist them in their deliberations concerning the allocation of resources within the WCPFC Convention area.

Fisheries without allocation schemes are often characterized by “Olympic” fisheries, governed by a single catch or effort limit but with no limit on the capacity of fishing vessels. These fisheries very often experience an economically damaging “race to fish”, usually leading to overexploitation, overcapacity, an incentive to misreport and an increasingly difficult control problem. Without allocation the benefits from exploitation of the resource accrue only to the fishers and to coastal states when these fishers are licensed to fish in their waters; other coastal states gain no benefit.

The objective of the Convention is the long-term conservation and sustainable use of highly migratory fish stocks in the WCPO. The race to fish unallocated resources is likely to undermine this objective. Allocation schemes offer participatory rights to Members, and can lead to more stable fisheries. The recognition of a right to fish a certain proportion of the available quota or effort usually builds confidence and leads to greater compliance amongst fishers. Factors other than simply the availability of fish in an EEZ, or the possession of a fishing fleet, can be taken into account in allocation. However, provision must be made for clear, equitable allocation that can accommodate the entry of new players and penalizes non-compliance.

Decisions concerning allocation of fisheries resources are amongst the most difficult decisions that an RFMO has to make. Each RFMO has approached the issue in its own way consistent with the considerations in play at the time of negotiation, including the status of the stock, the needs of the fishing industries and the aspirations of those states developing their fishery capacity. The tuna RFMOs have the added common problem of mobility since one stock of tuna may migrate between many EEZs or between EEZs and the high seas. Not only does this complicate the accurate assessment of these stocks, but a number of different states may have developed a genuine sense of ownership of the resource which complicates allocation discussions.

The Western and Central Pacific Fisheries Commission (WCPFC) has a unique advantage when it comes the allocation of resources. The Convention is explicit about the role of the Commission in respect of allocation and the issues that should be taken into account during allocation discussions (Article 10). This study explores these issues and the options open to the Commission to arrive at an agreement on allocation. The report is structured as follows.

- Section 1 is an executive summary, principally concentrating on the issues surrounding allocation and options for their solution.
- Section 2 is this introduction.
- Section 3 presents an overview of international law pertaining to the allocation of fisheries resources, and the legal issues surrounding allocation by the WCPFC.
- Section 4 presents a brief review of the experience of other Regional Fisheries Management Organizations (RFMOs) with allocation issues, particularly the tuna RFMOs (ICCAT, IATTC, CCSBT and IOTC). A more detailed discussion is presented as an Annex to the report.
- Section 5 presents an analysis of the issues that the Commission will need to address, and discusses some options for solving them and creating workable allocation schemes. This section includes a detailed analysis of the application of the various criteria in Article 10 (3) and their information requirements.

Glossary

ALB	Albacore
BET	Big eye tuna
BFT	Bluefin tuna
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCM	Commission Members, Cooperating Non-Members and participating Territories
CMM	Conservation and Management Measures
CS	coastal State
CP	Contracting Party
DWF CCM	indicates fishing by a CCM that does not take place within it's EEZ
DWF	Distant water fishing [vessel, state etc];
EC	European Community
EEZ	Exclusive Economic Zone
FFA	Forum Fisheries Agency
FSM Arrangement	Federated States of Micronesia Arrangement for regional fisheries access
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
IOTC	Indian Ocean Tuna Commission
ITQ	Individual transferable quota
LL	Longline
MHLC	Multilateral High Level Conferences on South Pacific Tuna Fisheries
MSE	Management Strategy Evaluation, a simulation modelling technique to identify the most robust management options
MSY	Maximum Sustainable Yield
NAFO	Northwest Atlantic Fisheries Organisation
NCP	non-Contracting Party
NEAFC	Northeast Atlantic Fisheries Commission
OPRT	Organisation for the promotion of responsible tuna fisheries
PAE	Party Allowable Effort of the VDS
PICs	Pacific Island Countries
PNA	Parties to the Nauru Agreement concerning cooperation in the management of fisheries of common interest
PS	Purse seine
RFMO	Regional Fishery Management Organisation
SBT	Southern bluefin tuna
SKJ	Skipjack tuna
SWO	Swordfish
TAC	Total allowable catch
TAE	Total allowable effort
UNCLOS	United Nations Convention on the Law of the Sea of 10 December 1982
UNFSA	UN Fish Stocks Agreement 1995, i.e. Agreement for the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks
VDS	Vessel Day Scheme of the Palau Arrangement
VMS	Vessel monitoring system (satellite monitoring)
WCPFC	Western and Central Pacific Fisheries Commission
WCPF Convention	The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
WCPO	Western and Central Pacific Ocean
YFT	Yellowfin tuna

The legal framework

Please refer to the glossary (section 0) for all acronyms.

The tuna stocks in the WCPO may be categorized (using FAO's categorization system for internationally-shared fishery resources) as:

A. Transboundary fish stocks – fishery resources that cross the EEZ boundary of one coastal State into the EEZ(s) of one, or more, neighbouring coastal States

B. Highly Migratory Fish Stocks – highly migratory species, as set forth in Annex I of the 1982 UNCLOS, consisting primarily of the major tuna species, found both within the coastal State EEZ and the adjacent high sea.

In the case of transboundary fish stocks, article 63(1), requires relevant coastal States to seek to agree, either directly or through appropriate sub-regional or regional organizations, upon the measures necessary to coordinate and ensure the conservation and development of such stocks without prejudice to the other provisions of Part V of the UNCLOS (notably articles 56, 58, 61, 62 and 64).

Where transboundary stocks occur both within the EEZ and the adjacent high seas, article 63(2) requires cooperation to be broadened to include coastal States and States fishing for the stocks in adjacent high seas.

Article 64 deals with highly migratory fish stocks and, as is well-known, requires cooperation, directly or through RFMOs, between coastal States and those who fish in the region with a view to ensuring conservation and promoting the objective of optimum utilization of highly migratory fish stocks both within and beyond the EEZ.

Munro (2006) contains a useful analysis of the key differences between the economics of managing transboundary fish stocks and highly migratory fish stocks (which he categorises along with straddling fish stocks), noting that significant differences include the number of players involved, the identity of the players (i.e. the open-ended nature of participatory rights and the problem of accommodating new entrants) and free-riding (whether due to illegal fishing or unregulated fishing by non-parties).

Munro's analysis also contains useful discussion as to how Pacific Island States were able to manage tuna stocks in the WCPO in effect using economic models for transboundary fish stocks through the medium of FFA and related sub-regional and regional arrangements. Primarily, these were in-zone management arrangements which applied *de facto* to the adjacent high seas only because economic considerations dictated that DWF CCMs did not consider it worthwhile fishing in adjacent high seas areas without access to at least one FFA Member country EEZ.

UNFSA

In effect, UNFSA confirms that, at least in relation to highly migratory fish stocks, the paradigm for management is the model reflected in articles 63(2) and 64.

RFMOs are now the accepted *modus operandi* through which UNCLOS obligations relating to the conservation and management of highly migratory fish stocks are to be carried out. Article 8 of UNFSA further institutionalises the duty to cooperate through RFMOs by

providing that only Members of RFMOs or non-Members which agree to apply the conservation and management measures adopted by RFMOs can have access to the fishery concerned.

Some points to note about UNFSA

- Articles 5 and 6 establish general principles that to some extent modify the principles contained in UNCLOS articles 56, 58 and 61 and which apply both within and beyond the EEZ. In other words, coastal States must manage their own resources in accordance with the general principles for management set out in UNFSA articles 5 and 6. Most importantly, this includes using the precautionary approach and adopting measures for associated and dependent species. These principles were implicit in article 61 but are now made explicit.

- The balance between in-zone arrangements and regional arrangements is reflected in article 7 on compatibility. Essentially, highly migratory fish stocks are to be managed "in their entirety". This means that in setting conservation and management measures States (through the RFMO) are to:

  > "(b) take into account previously agreed measures established and applied for the high seas in accordance with the Convention in respect of the same stocks by relevant coastal States and States fishing on the high seas;

  and

  > (c) take into account previously agreed measures established and applied in accordance with the Convention in respect of the same stocks by a sub-regional or regional fisheries management organization or arrangement;

  Neither has precedence over the other (the "special interest" argument initially advanced by some coastal States (notably Canada and certain Latin-American States) in respect of adjacent high seas straddling stocks was explicitly rejected by the Conference). For the FFA Members, this meant that they could negotiate a regional arrangement on the basis that UNCLOS-compliant in-zone measures (i.e. Munro's "transboundary" measures) would have to be respected.

- UNFSA parties are bound by article 8, which provides that only those States that are Members of the RFMO or which agree to apply the conservation and management measures adopted by the RFMO can have access to the fishery.

- But at the same time, UNFSA allows any State having a "real interest" in the fishery to become a Member of the RFMO. Real interest is not defined, but is clearly not limited to States with a pre-existing fishing history (i.e. a general interest in the "common good" of conservation and management would suffice). Equally, however, UNFSA avoids any explicit linkage between real interest and allocation of fishing opportunities.

UNFSA and allocation

UNFSA makes it clear that one of the functions of an RFMO is to "agree, as appropriate, on participatory rights such as allocations of allowable catch or levels of fishing effort." (Article 10(b)).

Beyond that, neither UNFSA, nor UNCLOS, provide any specific principles to guide allocation processes. It would be logical, nevertheless, to argue that any allocation decision by the RFMO must be consistent with the principles set out in articles 5 and 6. It would also be logical to argue that, in applying article 7 on compatibility, RFMOs should take account of coastal State catches but cannot, without the agreement of the relevant State, fetter coastal States' sovereign rights under articles 56 and 61 UNCLOS to exploit the living resources within their EEZs (providing those rights are exercised in accordance with UNCLOS).

UNFSA is concerned with how RFMOs should allocate participatory rights to new Members. Article 11 sets out a non-exhaustive list of criteria to be considered including: the status of stocks and level of current fishing effort; the respective interests, fishing patterns and fishing practices of new and existing Members; the respective contribution of new and existing Members to the collection and provision of data and conduct of scientific research on the stocks; the needs of coastal communities which are dependant mainly on fishing for the stocks; the needs of coastal States whose economies are overwhelmingly dependent on the exploitation of living marine resources; and the interests of developing States in the region in whose areas of national jurisdiction the stocks also occur.

The case of developing States warrants special mention. This is because articles 24 and 25 of UNFSA call for recognition of the special requirements of developing States and set out the forms of cooperation by which assistance to meet those special requirements is to be provided. However, while UNFSA parties are to assist developing States to develop their own fisheries for straddling and highly migratory fish stocks, to enable them to participate in high seas fisheries, and to facilitate their participation in RFMOs, cooperation for these purposes is to take the form of financial assistance, human resources development, technical assistance, transfer of technology through joint venture arrangements, and advisory and consultative services. Nothing in UNFSA gives developing States a *prima facie* right to an allocation of high seas fishing opportunities and articles 11, 24 and 25 of UNFSA – whilst encapsulating the tensions involved – fail to resolve the problems that might inevitably arise where such fisheries are fully or over-subscribed.

Application of the principle that all States have the right for their vessels to fish on the high seas implies that it is likely that in an undersubscribed or unregulated fishery new entrant developing States will likely have little difficulty obtaining an allocation. In over-subscribed fisheries it remains the case that the only way developing States or other new entrants might receive an allocation is if existing Members of an RFMO either willingly reduce their own allocations or agree to possibly unsustainable capacity increases.

Article 62 (2) also carries implications for the development of new fishing opportunities, setting down as it does the principle that where a coastal State does not have the capacity to harvest the allowable catch in their EEZ it shall give other States access to the surplus of the allowable catch. Since bigeye and yellowfin are fully utilised throughout the convention area there is likely no surplus within EEZs which could be allocated at higher levels than would be assumed from historic catch levels. However, this is not the case with skipjack which is probably currently fished below MSY: fishing states might argue that greater access to these resources should be granted by coastal states.

WCPFC

The underlying tensions implicit in the UNFSA Conference debate on allocation became more explicit in the WCPFC negotiations (the Multilateral High Level Conferences on South Pacific Tuna Fisheries, 1997 – 2000). In his information note on issues before MHLC3 (Tokyo, June 1998), the chairman of MHLC described the concerns thus:

> "9. The issue of allocation is important. It is essential that the Conference comes to some agreement on the methods and mechanisms that will be applied for this purpose. Any provisions to be included in a further revision of the draft working paper at this stage will be in the nature of principles and guidelines that will be applied when allocations are made by the proposed Commission. Some of the issues to be considered in relation to allocation include the process for allocation, the treatment of new entrants, and how to resolve disputes in relation to allocation, if any. Other factors which may be taken into account include the special status of small island developing States and the need to ensure a cost-effective and efficient procedure for allocation. The precise allocation that will take place would be part of the practical implementation of the Convention. The issue of allocation is related to a number of other issues, including the total allowable catch and effort, and the question of new entrants."[3]

By the end of the third session of the Conference, the draft WCPF Convention contained the following provision on allocation:

> Article 9
> Allocation of fishing opportunities[4]
>
> 1. In the allocation of fishing opportunities the Commission shall take into account:
>
> (a) The status of the stocks and the existing level of fishing effort in the fishery;
>
> (b) The respective interests, past and present fishing patterns and fishing practices of participants in the fishery;
>
> (c) The historic catch in an area;
>
> (d) The needs of coastal States in the Convention Area whose economies are substantially dependent on the exploitation of living marine resources;
>
> (e) The respective contributions of participants to conservation and management of the stocks, including to the provision of accurate data and the conduct of scientific research;
>
> (f) The record of compliance by the participants with conservation and management measures;
>
> (g) The needs of coastal communities which are dependent mainly on fishing for the stocks;
>
> (h) The interests and aspirations of developing States in the Convention Area in whose areas of national jurisdiction the stocks also occur.
>
> 2. The allocation of fishing opportunities from the overall catch limit shall not affect the rights of the coastal State on matters such as access to their exclusive economic zones and the terms and conditions of access as set out in the 1982 Convention.

Particularly noteworthy is paragraph 2, which would have had the effect of explicitly "ring-fencing" coastal State allocations in respect of EEZ catches made through access arrangements from overall regional catch limits. At the same time, paragraph 1,

[3] Information note on issues before the third session of the Conference, MHLC3, Tokyo, June 1998.
[4] MHLC/3/WP.1/Rev.1, 26 June 1998.

subparagraphs (d), (g) and (h) appeared to give emphasis to the claims of developing coastal States on shares of allocations of high seas catches.

This formula did not survive into the final Convention text. Nevertheless, the Convention text contains provisions relevant to allocation which extend significantly beyond the general provisions of UNFSA. These are as follows:

Article 10 WCPFC (giving effect to article 10 UNFSA) makes it clear that one of the primary functions of WCPFC is to

> (a) determine the total allowable catch or total level of fishing effort within the Convention Area for such highly migratory fish stocks as the Commission may decide and adopt such other conservation and management measures and recommendations as may be necessary to ensure the long-term sustainability of such stocks;

However, unlike UNFSA, this function is to be exercised

> Without prejudice to the sovereign rights of coastal States for the purpose of exploring and exploiting, conserving and managing highly migratory fish stocks within areas under national jurisdiction.

Furthermore, unlike UNFSA, the Western and Central Pacific Fisheries Convention explicitly envisages that the Commission will develop criteria for allocation and sets out some of the factors that the Commission must take into account in so doing.[5] Article 10(3) provides as follows:

> 3. In developing criteria for allocation of the total allowable catch or the total level of fishing effort the Commission shall take into account, *inter alia*:
>
> (a) the status of the stocks and the existing level of fishing effort in the fishery;
>
> (b) the respective interests, past and present fishing patterns and fishing practices of participants in the fishery and the extent of the catch being utilized for domestic consumption;
>
> (c) the historic catch in an area;
>
> (d) the needs of small island developing States, and territories and possessions, in the Convention Area whose economies, food supplies and livelihoods are overwhelmingly dependent on the exploitation of marine living resources;
>
> (e) the respective contributions of participants to conservation and management of the stocks, including the provision by them of accurate data and their contribution to the conduct of scientific research in the Convention Area;
>
> (f) the record of compliance by the participants with conservation and management measures;
>
> (g) the needs of coastal communities which are dependent mainly on fishing for the stocks;
>
> (h) the special circumstances of a State which is surrounded by the exclusive economic zones of other States and has a limited exclusive economic zone of its own;

[5] Article 10(4) also provides that decisions on allocation, whether of TAC or level of fishing effort, shall be taken by consensus.

(i) the geographical situation of a small island developing State which is made up of non-contiguous groups of islands having a distinct economic and cultural identity of their own but which are separated by areas of high seas;

(j) the fishing interests and aspirations of coastal States, particularly small island developing States, and territories and possessions, in whose areas of national jurisdiction the stocks also occur.

Some of these criteria are similar to the criteria listed in article 11 UNFSA in respect of new entrants and are criteria that are commonly applied in making allocation decisions generally (e.g. (a), (b), (c), (e) and (f)). Others are not only highly specific to the situation of WCPFC but also reflect a strong bias in favour of Pacific Island Countries (PICs).

Thus 3(d) emphasizes the needs of small island developing States, and territories and possessions, in the Convention Area whose economies, food supplies and livelihoods are overwhelmingly dependent on the exploitation of marine living resources. Arguably, this applies to nearly all PICs, with the possible exceptions of Fiji and PNG, although the meaning of overwhelmingly dependent may be open to debate.

Subparagraph 3(g) may be thought to give special consideration to the needs of artisanal fishers in coastal States, but could equally be invoked by coastal communities in DWF CCMs which are dependent mainly on fishing (e.g. Japan).

Subparagraph 3(h) and 3(i) were introduced to reflect two special situations. First, 3(h) deals with the circumstances of Samoa (which often refers to itself as “zone-locked”), whilst 3(i) refers to the unique situation of Kiribati with its three separate and disjointed Gilbert, Line and Phoenix Island groups.

Finally, subparagraph 3 (j) provides a link to article 30(1), which requires the Commission to give full recognition to the special requirements of developing States Parties in relation to both conservation and management and the development of fisheries for highly migratory fish stocks. Unlike UNFSA, article 11(f), which speaks of the interests of developing States, subparagraph 3 (j) makes reference to the “fishing interests and aspirations” of coastal States … in whose areas of national jurisdiction the stocks also occur. The link between EEZ stocks, PICs and developmental aspirations is thus highly explicit.

Practical implementation

How these provisions will be implemented in practice remains far from clear. What is clear is that decisions on allocation remain one of the few areas where the innovative decision-making provisions of the WCPF Convention do not apply and consensus is required. This means that, in the absence of clear decision-rules to apply the factors listed in article 10(3), allocation is bound to remain a process primarily governed by political considerations.

It should be noted, however, that the requirement for consensus does not prevent the use of conciliation procedures where consensus cannot be achieved (article 20(4)).

Non-parties and new Members

Two special situations must be mentioned where the WCPF Convention differs from the general UNFSA provisions.

First, unlike UNFSA, there is no special provision for new Members. Indeed, the WCPF Convention provides that new Members may only be admitted after entry into force of the Convention and by consensus invitation of the Parties. There is no provision for allocation of catches to new Members, although article 10(1)(k) provides that one of the functions of the Commission shall be to "agree on means by which the fishing interests of any new Member of the Commission may be accommodated."

It should be noted that this does not necessarily require the adoption of any standing procedures, but could be determined on an *ad hoc* basis as necessary. In this regard, the WCPF Convention is considerably more restrictive than UNFSA.

In relation to non-parties, the WCPF Convention seeks to apply the principle set out in article 17 UNFSA to the effect that non-Members (of the RFMO) are not discharged from the obligation to cooperate in accordance with the UNCLOS. WCPFC article 32(4) provides that cooperating non-parties (to WCPFC) shall enjoy benefits in the fishery commensurate with their commitment to comply with conservation and management measures and their record of compliance. Such benefits are undefined but may, presumably, include allocation although as for new Members, the WCPF Convention gives no guarantee that there will be an available allocation.

The difference between UNFSA provisions and WCPFC provisions may be accounted for on the basis that, by reason of UNFSA article 8, non-parties to WCPFC that are parties to UNFSA are, in effect, obliged to cooperate or to become parties to WCPFC if they wish to fish in the region.

Respect for existing regional arrangements

If the overall intent of the WCPFC Parties was to give prominence to the interests of developing coastal States in arriving at regional allocation criteria, it is equally the case that PICs remained concerned to preserve their own rights to allocate in-zone catches as they saw fit (albeit constrained by general UNCLOS and UNFSA provisions as discussed above).

This is achieved in two ways. First, by the provision that any regional allocation formula is to be without prejudice to the sovereign rights of coastal States in the EEZ. Second, by the WCPFC provisions on compatibility, which act at the same time as a constraint on the way in which coastal States may exercise their sovereign rights in the EEZ.

The first condition (read with article 8(2)(b) and (c) WCPFC) implies that any allocation formula must respect pre-existing management arrangements. This was a necessary precondition for many of the Pacific Island countries and at least some of the DWF CCMs (notably the USA) participating in the WCPFC negotiations. The principal pre-existing management arrangements are:

- The Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery
- The FSM Arrangement for Regional Fisheries Access
- The Multilateral Treaty with United States

Palau Arrangement

The Palau Arrangement was adopted by the PNA[6] in 1992 with the intention of setting an agreed cap on the level of effort by large-scale tuna purse seine vessels. The Arrangement

[6] FSM, Kiribati, Nauru, Palau, PNG, Solomon Islands, Tuvalu.

imposes an effort-based limit (by fleet) on the number of vessels that may be licensed to operate in the EEZs of the PNA. Since 1992, that limit has been set at 205 purse seine vessels. Indirectly, the Palau Arrangement affects the high seas adjacent to PNA simply because it is not economic for DWF CCM fleets to operate exclusively in these areas without access to one or more PNA EEZs. Eighty per cent of the purse seine fishery is located in PNA Member EEZs.

In 1994 the number of bilateral licences available to foreign fleets (i.e. non PNA fleets) was reduced by 10% to allow an increase in domestic vessels, effective from 1997. More recently, the PNA has decided to move away from the existing system of limits on fleets to a vessel day scheme. Under this scheme the parties will determine the total allowable effort (TAE) on an annual basis. This TAE will then be allocated amongst the Parties to the Palau Arrangement, after allowance is made for effort expended under the U.S. Treaty arrangements. In the process of allocation, equal weight is to be given to historic level of effort in the EEZ and the level of estimated biomass in the EEZ by year. Individual Parties may then use the allocated days as they see fit, either by licensing foreign vessels or by giving preference to domestic fleets. The vessel day scheme is to be implemented progressively until full implementation by 1 December 2007. Until that time, the vessel limits under the Palau Arrangement will also remain in place.

FSM Arrangement

The purpose of the FSM Arrangement is to promote the development of a domestic purse seine fishery in the PNA subregion by allowing eligible vessels to secure preferential access to more than one PNA EEZ. Eligible vessels are defined as those that have met certain criteria as to domestication, e.g. level of investment, crewing, landing etc. The Arrangement is centrally administered through FFA.

Multilateral Treaty on Fisheries – the "U.S. Treaty"

Under the multilateral treaty with the United States (1988), FFA Members have agreed to give regional access to up to 50 U.S. purse seine vessels subject to terms and conditions specified in the treaty (recently renewed up to 2010). In fact, owing to a variety of factors, the effort allocation under the treaty is not fully utilized by the U.S. at present. One of the difficulties for the Parties to the Palau Arrangement has been how to reconcile their obligations under the U.S. Treaty with the decline in the overall size of the U.S. fleet. Similar difficulties may well confront WCPFC.

Existing conservation measures

The Commission has adopted a number of conservation and management measures (CMM) and resolutions relevant to the discussion of future allocations. In the nomenclature adopted by the Commission, "resolutions" describe non-binding statements and recommendations addressed to Members of the Commission and Cooperating non-Members. "Conservation and management measures" describe binding decisions relating to conservation and management which may include, pursuant to article 10(4) of the Convention, decisions relating to the allocation of the total allowable catch or level of fishing effort.

CMMs adopted to date include the following.

Bigeye and yellowfin tuna

CMM-2005-01 is intended to cap the total level of fishing effort for bigeye and yellowfin tuna in the Convention Area at "current levels" (defined by a footnote to the CCM to mean all fishing authorized under existing regional or bilateral fisheries partnership arrangements or agreements providing these are registered with the Commission before the third annual session in 2006).

Although CMM-2005-01 purports to establish an overall cap on the total level of fishing effort (albeit very imprecisely defined) it is not per se an allocation of that total level of fishing effort. Nevertheless, CMM-2005-01 contains provisions which have the effect of allocating at least part of the total fishing effort between Commission Members, cooperating non-Members and participating territories (collectively referred to as "CCMs"). Thus:

- In the area between 20°N and 20°S purse seine effort levels in waters under national jurisdiction should not exceed either 2004 levels, or the average of 2001 to 2004 levels. In the case of PNA Members, this provision is to be implemented by application of the new Vessel Day Scheme under the Palau Arrangement. In the case of non-PNA Members, the provision is to be implemented through "similar measures". For the high seas, the Commission is required to implement "compatible measures" to ensure that purse seine effort levels do not exceed 2004 levels on the high seas in the Convention Area.

- In the case of the longline fishery, the catch of bigeye for each CCM for the next three years (i.e. 2006 – 2008) shall not exceed the average annual bigeye catch for the years 2001 to 2004, except that in the case of the United States and China, the average for 2004 shall be used. Any CCM that caught less than 2,000 tonnes of bigeye in 2004 is allowed to increase its catch up to 2,000 tonnes in each of the next three years.

In the case of the longline fishery, this may well be considered an allocation of the bigeye catch by flag state throughout the entire Convention Area. In the case of the purse seine fishery, however, there is at best only a partial de facto allocation of effort. There is in particular, no allocation of high seas effort and no clear linkage between the overal level of fishing effort in the Convention Area ("current effort") and the level of in-zone effort authorized under the Palau Arrangement.

South Pacific albacore

Under CMM-2005-02, CCMs agree not to increase the number of their vessels actively fishing for South Pacific albacore in the Convention Area south of 20°S above 2005 levels. Whilst the measure could operate as a *de facto* allocation of fishing opportunities between flag States (providing there are no transfers of effort between fleets), the measure would appear to be designed to be a simple cap on the total level of fishing effort rather than an attempt to allocate TAC or TAE.

North Pacific albacore

Under CMM-2005-03, the Commission agreed that the total level of fishing effort for North Pacific albacore in the Convention Area north of the equator shall not be increased beyond current (2005) levels. The measure contains no provisions relating to allocation of the total effort between CCMs.

Resolutions on capacity

The above measures need to be viewed in the context of a series of non-binding resolutions adopted by the Commission (and by the Preparatory Conference prior to the entry into force of the Convention) aimed at restraining any increase in capacity.

The first resolution, adopted in 1999, urged States and entities to "exercise reasonable restraint" in respect of any regional expansion of fishing effort or capacity. A further resolution, adopted in 2003 (implicitly recognizing the failure of the 1999 resolution to have any effect) urged States and entities who have "continued to breach" earlier resolutions to reduce overcapacity.

The most recent resolution (2005-02) requires CCMs whose nationals are beneficial owners of purse seine vessels that entered the Convention Area after the initial resolutions were adopted (i.e. after 1999) to work with other CCMs to reduce such overcapacity as "may have been created" by 31 December 2007. It should be noted that such reductions in overcapacity may be achieved through "reduction of equivalent fishing capacity of other fishing vessels operating in the Convention Area".

The resolutions are non-binding and it is unclear what the relationship is between the most recent resolution on reduction of overcapacity and the CMM-2005-01. Presumably, by capping purse seine effort at "current levels" CMM-2005-01 implies that there is in fact no overcapacity at present, notwithstanding that the 1999 resolution was ineffectual in restraining increases in capacity. Whilst this may be true for skipjack, it is clearly not the case for bigeye and yellowfin; Reid et al (2005) estimate that purse seine fishing capacity for yellowfin and bigeye in the WCPO is 11-28% greater than needed to take the available catch. Overcapacity in the longline fleet is accepted, with the OPRT calling for a reduction of 20% I nthe number of large longline vessels fishing in the world ocean.

Compatibility

The requirement for compatibility between high seas and EEZ management of highly migratory fish stocks (Article 8) implies that any pre-existing (or subsequent) in-zone management arrangement (whether by a single coastal State or sub-regionally) must be (a) consistent with general UNFSA and WCPFC provisions on management principle and (b) not undermine the effectiveness of measures adopted by the Commission in respect of the same stocks. In other words, individual or sub-regional measures adopted by coastal States must not exceed (or be incompatible with) the total allowable catch or effort adopted at Commission level.

For this reason, article 8(2)(b) provides that the Commission shall take into account

> (i) the conservation and management measures adopted and applied in accordance with article 61 of the 1982 Convention in respect of the same stocks by coastal States within areas under national jurisdiction and ensure that measures established in respect of such stocks for the Convention Area as a whole do not undermine the effectiveness of such measures;

But article 8(3) goes on to counterbalance this by providing that

> 3. The coastal State shall ensure that the measures adopted and applied by it to highly migratory fish stocks within areas under its national jurisdiction do not undermine the effectiveness of measures adopted by the Commission under this Convention in respect of the same stocks.

High seas enclaves

A particular concern during negotiations on the Convention was the status of the so-called "high seas pockets". These are areas of high seas adjacent to coastal State EEZs within the FFA region. In the past, there was strong evidence that these high seas pockets (particularly those adjacent to Nauru, FSM and PNG) were havens for IUU fishing (including incursions into adjacent EEZs). Concerns over the status of high seas pockets led to the following special provision in the WCPF Convention:

> 4. Where there are areas of high seas in the Convention Area entirely surrounded by the exclusive economic zones of Members of the Commission, the Commission shall, in giving effect to this article, pay special attention to ensuring compatibility between conservation and management measures established for such high seas areas and those established in respect of the same stocks in accordance with article 61 of the 1982 Convention by the surrounding coastal States in areas under national jurisdiction.

Summary

The Commission clearly has a duty to make overall allocation decisions, including global TAC or level of fishing effort, and these are consistent with the obligations of parties to UNFSA. The Commission is also responsible for setting criteria for allocation on the basis of the list in article 10(3), and the rest of this paper deals with these issues.

Commission decisions are without prejudice to decisions in EEZ in exercise of sovereign rights (i.e. licensing decisions and decisions to set domestic TAC). Nevertheless, any such domestic decisions must be compliant with UNCLOS and UNFSA (including precautionary approach). Commission allocation decisions and formulae must take into account legitimate EEZ and sub-regional measures and must not undermine them. Equally, coastal State measures must not undermine the effectiveness of measures adopted by the Commission in respect of the same stocks.

Review of the experiences of other RFMOs

The experiences of other RFMOs that are most pertinent to the allocation issue for WCPFC are:

- The basis on which the initial allocation was developed between existing Members of the RFMO;
- Balancing the interests of distant water fishing fleets with those of coastal States;
- Dealing with new entrants
- Addressing IUU fishing; and
- Ensuring compliance with conservation measures.

Table 1 provides an overview of how each RFMO has dealt with these issues, which is explained further in the summary text following and in Annex 1.

Table 1. Summary of RFMOs Response to Allocation Issues

ISSUES	ICCAT	CCSBT	IOTC	IATTC	NAFO	NEAFC	CCAMLR
Data used in making allocation decisions.	Stock assessment, historical catch, bycatch.	Stock assessment, historical catch, aspirations developing countries.	Gross registered tonnage. Catch data now being used to prepare allocation plans.	Vessel carrying capacity	Stock assessment, historical catch.	Historical catches, and to a certain extent (atlanto-scandian herring, mackerel) stock distribution.	Allocation decisions are not actively made on any data other than applications to fish.
Balancing interests of coastal States and DWFNs	Negotiated allocation criteria. Negotiated balance of interests on a stock by stock basis.	Negotiated allocations based on historical catch. Development of mathematical management procedure for setting TAC.	Capacity restriction to protect bigeye. Preparation of a multi-year plan for allocations.	Longline: Negotiated allocations based on historical catch Purse seine: fish carrying capacities frozen at 2002 levels	Negotiated settlements Use of Allocation Working Group to prepare criteria for stocks not currently or ever allocated by NAFO.	Herring, mackerel, and blue whiting are allocated first by the coastal States which determine a high seas portion of the stock to be given to NEAFC. NEAFC then allocates this proportion to other non-coastal States.	TACs are determined by CCAMLR for areas under national control, but allocation is not specified for them. coastal States have right of veto under the Chairman's Statement
Accounting for the increasing interests of Members developing fisheries and new entrants	Set aside portion of quota for developing fisheries. Small unassigned albacore quota pool. BFT quota offered to UK and France to join the Commission.	Small unassigned quota pool in 2003. Korea and Taiwan offered allocation as Members.	Allowed smaller fleets to expand within a development plan submitted to Commission	Exemption for developing fleets from capacity limits on major fleets.	Non-Members may accede to NAFO but quotas are fully allocated. Limited fishing opportunities for new Members within "others" categories.	In the only fishery primarily controlled by NEAFC, redfish, a small quota (0.3%) is set aside for cooperating non-contracting parties.	Not adequately dealt with; apparent "catch 22" restricting harvesting to current Members. New entrants discouraged.
Cases of where compliance is used to determine allocations	Allocations for NCPs to join or gain cooperating status. Notification and Trade sanctions for violators. Penalties for violating Members. (Chinese Taipei)	South African allocation reduced due to non-compliance. Japanese allocation reduced for 5 years following overcatch	Compliance committee reviews applications for cooperating status.	Removal of a vessel from the register of fishing vessels affecting the fishing capacity of the nation.	Quota reductions in subsequent periods to deal with over-runs.	A party can only become a cooperating non-contracting party if its compliance record is good and it has not engaged in IUU.	IUU list vessels cannot participate in an exploratory fishery. Poor compliance by an existing vessel may lead to it being on the IUU list.

ICCAT

ICCAT has used TACs based on scientific advice and national allocation of quota to Members in the management of its stocks. Other tools include time/area closures for the Mediterranean longline and purse seine fleets fishing for bluefin tuna, and effort controls on the number and size of vessels.

ICCAT allocation decisions since 2002 have been influenced by a set of allocation criteria developed over a two year period of negotiations in 2000-2001. The result has been a greater inclusion of all Members in sharing ICCAT stocks.

The allocation qualifying criteria include two conditions necessary to receive any allocation: firstly the party must be a Contracting Party or a cooperating non-Contracting Party, Entity or Fishing Entity; secondly, the party must have the ability to apply the conservation and management measures of ICCAT.

It is important to note that ICCAT allocation criteria are applied to all stocks under the mandate of ICCAT including those for which rebuilding plans are in place. This provides some hope for Members and non-Members that never had quota to be able to share in fishing the stock as the rebuilding plan is implemented.

The criteria used to determine the level of quota offered include:

- Two conditions related to the fishing activity of qualifying participants: historical catch of qualifying participants and the interests, fishing patterns and fishing practices of qualifying participants. This wording is consistent with the Fish Stocks Agreement and the WCPF Convention.

- Two criteria relating to the status of the stock to be allocated: status of the stock relative to MSY or an agreed biological reference point; and the distribution of the stock in EEZs and on the high seas.

- Eight criteria relating to the status of the qualifying participants including:
  - the interests of artisanal subsistence coastal fishers;
  - the needs of coastal communities dependent on the stocks;
  - the needs of coastal States whose economies are overwhelmingly dependent on exploitation of marine resources;
  - the socio-economic contribution of the fisheries to the developing states, especially small island states;
  - the dependence on the stock of the coastal State;
  - the economic and or social importance of the fishery for qualifying participants whose fishing vessels have habitually participated in the fishery.
  - the contribution of the fishery to the national food security, domestic consumption, income resulting from exports, and employment; and
  - the right of qualified participants to engage in fishing on the high seas for the stocks to be allocated.

- Three criteria relating to compliance issues and scientific research programmes:
  - the record of compliance or cooperation by qualifying participants with ICCAT's conservation and management measures;
  - the exercise of responsibilities concerning the vessels under the jurisdiction of qualifying participants; and

- the contribution of qualifying participants to conservation and management of the stocks, to the collection and provision of accurate data required by ICCAT and, taking into account their respective capacities, to the conduct of scientific research on the stocks.

In addition, ICCAT has agreed conditions relating to the application of allocation criteria:

- they should be applied in a fair and equitable manner with the goal to ensure opportunities for all qualifying participants;
- they should be applied on a stock-by-stock basis by the relevant ICCAT Panels;
- the criteria should be applied in a gradual manner in order to address the economic needs of all parties;
- the application should take into account the contributions to conservation made by qualifying participants necessary to restore or rebuild fish stocks;
- the criteria should be applied consistent with international instruments and in a manner that encourages efforts to prevent and eliminate over-fishing and excess fishing capacity;
- they should be applied so as not to legitimize illegal unregulated and unreported catches (IUU) and shall promote prevention deterrence and elimination of IUU fishing;
- they should be applied in a manner that encourages cooperating non-contracting parties to become contracting parties where they are eligible to do so;
- they should be applied to encourage cooperation between the developing states and other states for the sustainable use of fish stocks in accordance with relevant international instruments; and
- no qualifying participant shall trade or sell its quota allocation or part thereof.

Using these criteria as a tool to assist quota allocation negotiations, new entrants were able to secure significant quotas. In 2002 Mexico was allocated 25t of BFT-W (Western Bluefin tuna) in recognition of an aspiring fishery and, in preparing a rebuilding plan for Northern Swordfish (SWO-N), ICCAT included not only the traditional parties but gave specific allocations to Morocco, Mexico, Barbados, Venezuela, Trinidad/Tobago, the UK, France, China and Chinese Taipei in recognition of their existing fisheries and aspirations. Again in 2002 (Measure 02-03), ICCAT expanded its existing allocation scheme for create the first comprehensive allocation of the SWO-S stock, including most of the surrounding coastal countries. The decision included a balance between the needs and aspirations of coastal States, DWF and traditional parties in the fishery.

The ICCAT allocation criteria include a provision that no Member may sell or trade its quota, but exchanges are allowed. For purposes of transparency, all quota exchanges are made at Commission meetings to ensure all parties are ware of the relevant facts of each transfer. A Member may be able to account for an over-run of quota in one area by offering another unused quota to another nation in return for sufficient quota to deal with the over-run.

In ICCAT, a TAC for a certain species does not distinguish between fish that are in an EEZ or in high seas waters. Allocation of TAC to a party includes the whole Convention area, which includes all of the Atlantic and adjacent seas. Whether a party chooses to take its quota on the high seas or in the waters of an EEZ is not specified in the allocation process. A coastal State will therefore have the right to fish either in its EEZ or on high seas, and a distant water state may only fish its quota in an EEZ if granted a licence by a coastal State. However, the very important last criterion means that quota trades cannot take place. Therefore, if a coastal State was unable to take its quota by its own means, it could not licence another qualifying participant to take that quota unless under a charter or joint venture arrangement.

CCSBT

Before the CCSBT Convention came into force in 1994, southern bluefin tuna was managed by tri-party agreements made between Australia, Japan and New Zealand. CCSBT therefore inherited the allocation scheme as negotiated between the original Members in 1986. There does not appear to be any existing public record recording the basis of the original allocation decision.

Scientific stock assessments for southern bluefin have been very controversial, with differing views concerning the status of the stock being held by the different parties. For instance, an impasse on a TAC decision for SBT in 1996 resulted in Members unilaterally setting national quotas based on a 1995 decision.

CCSBT introduced a management procedure in 2005 for establishing and changing Total Allowable Catch. The procedure takes into account changes in biomass and is meant to provide some stability to the SBT TAC over the longer term, but it does not appear that it will provide any adjustments to the national shares which remain as originally negotiated in 1986.

At the time of writing this report, Japan agreed to a 3000 t reduction in its quota for SBT for 5 years beginning in 2007, from 6065 t in 2006, because it had caught more than its quota in some previous years. Although this implies an adjustment to allocations (the other parties' quotas remain unchanged with the total catch being reduced to 11530 t from 14030 t in 2006) this is only a temporary adjustment to the allocation.

Since it is dealing with a single stock in a single area, CCSBT has limited flexibility in offering quotas to new entrants. CCSBT did however set aside an unassigned quota pool for nations without quota in 2003. At the same time Korea and Chinese Taipei were offered allocations as new members. South Africa and Philippines were offered allocations as cooperating parties but the allocation to South Africa was subsequently reduced due to non-compliance.

IATTC

Rather than manage with a single overall approach, IATTC chooses to separate the management measures for purse seine from those for the longline fishery.

The purse seine fishery is managed with capacity allocations and closure periods.

The early experience of IATTC is instructive. In 1966 a single-quota Olympic fishery management system was introduced for yellowfin tuna, which rapidly led to overcapacity and a shortening of the fishing season. Allocations were made only on the basis of historical catch, not on the basis of the distribution of tuna. The US would not agree on allocations to coastal developing states using adjacency of EEZs, or sovereign rights to exploit tuna in their EEZs, as an argument, but did agree to allocation on the basis of economic need. This almost led to a collapse of the IATTC, and this first early attempt at management and allocation was abandoned in the mid-1970s.

IATTC now uses the following criteria to establish national maximum purse seine carrying capacities for contracting parties:

- the catch of national fleets 1985-1998
- the amount of catch historically taken with the zones where each state exercises sovereignty or national jurisdiction;
- the landings of tuna in each nation; and
- the contribution of each state to the IATTC conservation program.

The capacity measurement required to operate the management system has encountered some problems, including:

- The accurate measurements of capacity (gross volume vs net volume);
- Temporarily sealing a fish well to reduce the capacity during inspection (although we note that there are technical reasons that a vessel might permanently seal a fish well, including to increase the number of vessels with limited registered capacity or replacing a vessel with one that is larger for efficiency reasons;
- Using non-fish well space for carrying fish; and
- Disagreements about whether or not national fishing capacity is transferred with a vessel when it is sold and re-flagged.

The longline fishery of the major fleets of China, Japan, Korea and Chinese Taipei is managed on the basis of national quotas provided as a result of negotiations based on stock conditions and historical catch during the period 2000-2002. Other parties and cooperating non-parties are committed to ensuring their 2007 bigeye catches do not exceed 500t or their catch level of 2001.

In order to attain cooperating status with IATTC, parties must provide information concerning their historical catch in the IATTC area, respect all conservation measures of IATTC and other RFMOs and participate in plenary and scientific meetings. There is no explicit mention of allocation for new members but cooperating status gives the prospective member the opportunity to participate in negotiations regarding these and other issues.

IOTC

Like IATTC, the IOTC uses restrictions on vessel size, expressed as GRT, as a means to limit the fishing effort of the fleets fishing in the IOTC Convention Area. However, these restrictions are not binding.

Although there have been attempts to develop time/area closures and place limits on the catch of the major fishing nations within the IOTC, process has been slow to date. The latest IOTC meeting in 2006 passed a Resolution which calls for Members to limit fishing capacity to 2006 levels but allows for a great deal of flexibility in its application. The agreement recognizes fisheries development plans submitted by member nations with a catch less than 1000 t. It also recognizes national fleets with vessels under construction and authorizes Members to rebuild reduced fleets to 2000 levels.

CCAMLR

CCAMLR has avoided the issue of allocation by restricting itself to assigning area-based TACs only. This approach acknowledges the existence of coastal State jurisdiction for some of the sub-Antarctic islands; there are very few stocks that straddle both EEZs and high seas waters. However, there is a *de facto* allocation scheme in operation for exploratory fisheries, in that they are only open to Members who notify their intention to fish, and provide a data collection and research plan, prior to the CCAMLR meeting. The Conservation Measures for new and exploratory fisheries specify how many vessels of each Member may fish. Neither quota nor more detailed effort (eg vessel days) are allocated. Only high seas fisheries are currently subject to this de-facto allocation.

CCAMLR has an IUU list, and any vessel on this list may not fish or be allocated quota by a Member. This may, then, be a way of limiting fishing opportunities to Members, but in reality

and because of the consensus decision making system this has never had significant effect on allocation.

CCAMLR does not allow fishing by cooperating non-contracting parties or by contracting parties that are not Members (i.e. by acceding states), although states may indicate either cooperation with CCAMLR on other issues such as the catch document schemes. Non-signatory Contracting Parties may become Members only for so long as they are engaged in fishing or research. However, CCAMLR still suffers from IUU fishing by a range of NCP states which have no prospect of ever becoming CPs or Members.

NAFO

NAFO's allocation approach is driven by the long history of fishing by many nations in the western Atlantic and the distribution of some of the more traditional stocks in the NAFO regulatory area which straddle the jurisdiction of coastal States. With the exception of an effort control scheme for the shrimp fishery in NAFO area 3M for the 2004-2007 period, NAFO has traditionally used TACs and national allocations in order to manage its fisheries.

NAFO has granted quota through a reserve scheme for non-Members (the "Others" category) and set up a quota transfer scheme starting with squid in 1980 provided that the TAC was not exceeded. A provision of this agreement required transfers made to Contracting Parties conducting fisheries for squid within the Regulatory Area be reported to the Executive Secretary as promptly as possible.

At the 1997 NAFO Annual Meeting, the Fisheries Commission formed the Working Group on the Allocation of Fishing Rights to Contracting Parties of NAFO. Although the Allocation Working Group met inter-sessionally during 1998-2000, progress was slow and marked by a lack of consensus on key issues. At the March 26-27, 2003, meeting of the Working Group on the Allocation of Fishing Rights developed a list of allocation criteria applicable only to stocks that are not now and never have been allocated by NAFO. Thus, while the criteria are quite good, their present scope is very limited.

To a large degree the inability of the Allocation Working Group to agree on a comprehensive strategy for allocation of fishing opportunities in NAFO can be traced to a basic difference in perspective between the older and newer Members of the Organization. A number of the valuable stocks once available to the NAFO membership are now under moratoria or have only very limited TACs. NAFO Parties that once enjoyed national quotas for these stocks are of the opinion that, should any of these resources recover, those Parties with historical fisheries within the Organization should retain fishing rights under the percentage shares in place when the stocks were healthy. New Members are, naturally, of a different opinion. At the same time, along with all other RFMOs, NAFO has been faced with considerable IUU fishing from non-Parties. In an attempt to arrest this activity, NAFO has stated that any non-Member my accede to NAFO, but that "presently and for the foreseeable future, stocks managed by NAFO are fully allocated, and fishing opportunities for new Members are likely to be limited, for instance, to new fisheries (stocks not currently allocated by TAC/quota or effort control) and the "Others" category under the NAFO Quota Allocation Table (FAO, 2002[7]).

[7] FAO Fisheries Report No. 695. Report of the Norway-FAO expert consultation on the management of shared fish stocks, Bergen, Norway, 7-10 October 2002.

NEAFC

Of the 4 stocks that are managed by NEAFC, mackerel, atlanto-scandian herring and blue whiting are essentially coastal stocks that straddle into high seas (NEAFC) waters. The major decisions on allocation are made firstly by the coastal States and only secondly by NEAFC. For instance, for mackerel, given the scientific advice on quotas consistent with the long-term management plan the EC, Faroes and Norway reach a decision on the quota to be applied and allocate 11% of this to high seas NEAFC waters. This 11% is further allocated between the distant water Members, Russia and Iceland, and the coastal States. Poland used to be a distant water fishing state on mackerel but since it became a Member of the EC its quota has been transferred to the EC. Until this jurisdictional change Poland and Iceland had fixed quantity allocations, but all allocations are now proportional.

The only stock that is primarily managed by NEAFC is redfish. NEAFC does not allocate this fishery between its Members, but it does set aside a proportion for NAFO waters. From the mid-1990s it was clear that there was a considerable non-contracting party (IUU) catch of redfish, mostly taken by Latvia and Estonia and a Scheme to promote compliance by non-Contracting Party vessels was established in 1999. This has, as Article 10, a procedure for non-Contracting Parties to become cooperating non-Contracting Parties. NEAFC sets aside a very small TAC for these cooperating parties (current 0.3% of the TAC). The only party currently interested in becoming a cooperating non-Contracting Party is Belize, which wishes to undertake transshipment, not fishing, in the Convention Area (NEAFC report, November 2005). Thus this mechanism for inclusion of non-Contracting Parties, whilst present, is not currently used.

Potential allocation models

Initial considerations

The need for allocation

Assuring parties of their rights to participate in a fishery removes many of the detrimental features of the race to fish, eliminating so-called "Olympic" fisheries. Experience in many other RFMOs has shown that if effort is unchecked, Olympic fisheries will suffer from increased fishing effort and capacity to the point that they collapse. The inability to agree an allocation of blue whiting in NEAFC led to increasing effort by all parties throughout the 1990s (so as to establish a historical interest in the fishery prior to anticipated allocation discussions) to the extent that fishing mortality is now higher than the limit reference point (ICES, 2005). The Olympic fishery managed by IATTC in the late 1960s also led to increased fishing effort and capacity, and in addition the inability of parties to agree and equitable allocation, particularly between DWF and coastal states, further exacerbated the problem and almost led to the collapse of the Convention (see section 0).

In a socio-economic sense, participatory rights are assumed (though not universally proven) to provide security which in turn encourage fishers to behave responsibly and value long-term conservation and sustainability goals over short-term profitability. However, in allocating rights one has to be careful to include sufficient safeguards to ensure future flexibility – both between parties, and allowing for new parties – particularly in situations where fisheries resources are already over-exploited – or approaching over-exploitation. Non-allocated, "Olympic" fisheries, have this flexibility by definition, but are subject to often severe problems due to the race to acquire as much of the allocation as possible. Even so, not all RFMOs have chosen to allocate their resources directly to their Members. IOTC and CCAMLR, for instance, have very loosely developed allocation procedures. For ICCAT and IATTC allocation has become a necessity, but it has not been painless as we have shown.

Unfortunately, the allocation of rights does not remove the incentive for short-term gain entirely. Simple economics will ensure that most fishermen will seek to maximize their personal catch, even if this means going beyond their quota. For the WCPFC this means that CCMs will need to monitor the activities of their fishing vessels or quota holders very carefully. They may be able to allocate individual vessel quotas within their national allocation, or they may choose to allow their vessels to operate in an Olympic sense within the national allocation. Whatever, their intention, international scientific observer and inspection schemes in combination with other essential MCS tools such as VMS, should be an integral part of the consideration to ensure compliance.

Allocation criteria

WCPFC allocation criteria (Article 10) are consistent with the Fish Stocks agreement and with useage in a number of other commissions. Before discussing allocation options it is useful to briefly review the criteria, the extent of their application in other RFMOs, and the potential issues that are likely to be faced in trying to apply them (Table 2).

Table 2. Analysis of WCPFC Allocation Criteria

WCPFC[8]	SIMILAR CRITERIA APPLIED IN OTHER RFMOS	PRACTICAL ISSUES REGARDING IMPLEMENTATION
10 (3) a. Status of the stocks and the existing level of fishing effort	Status of the stock has wide usage as a factor in setting TAC and may influence allocation issues where bycatch of a specific fishing gear is concerned or large closed areas substantially affect fishing in an associated EEZ. Closed areas will affect many species, for instance closed areas on bigeye could affect the skipjack purse seine fishery.	Status of the stock in relation to MSY or an alternate agreed upon target. Catch and effort data, Catch at age, Migration data, Size frequency of fish, Maturity data Natural mortality, Growth, Species compositions of catches for analyzing species interactions
10 (3) b. Interests, past and present fishing patterns and fishing practices	This criterion is broad in its interpretation and may be used by states with development aspirations to have their interests recognized. It may also be used by existing fleets to support the status quo of present fishing patterns and practices.	Commercial catch data by gear type. Development plans including aspirations for a fishing fleet.
10 (3) b. Extent of the catch being utilized for domestic consumption 10 (3) g. The needs of coastal communities.	This criterion relates to the food security of the nation and may be used by both coastal States and DWF CCM's	Landing data at the village level and national level. Fish consumption data. Fish exports and contribution to GDP Licence/access arrangement and fees
10 (3) c. Historic catch in an area	This criterion is central to the allocation decision and is dependent on the provision of accurate catch data. It is also open to interpretation concerning the time period considered for calculating historical catch. Accurate data are essential for the correct attribution of catches both to an area (where a coastal State allocation is considered) and flag state (where fishing state allocations are considered).	Catch data of commercial, recreational and artisanal fisheries. Social and cultural importance of tuna or bycatch species. Analysis of the implications of various historical time frame options. Resolution of catches by area, year, season, species, flag state and gear.
10 (3) d. Needs of small island developing States, territories, possessions	This criterion has been used effectively by small island nations to compare their interests to other nations with much larger land masses and more diverse economies.	Consumption and export data relative to GDP. Description of economy to determine importance of fishery. GIS analysis of land mass and EEZ
10 (3) e. Contributions of participants to conservation and management	This criterion has been used by RFMOs to assess the application by non-Members to either join the commission or to gain cooperating status. It has also been used as an argument in negotiation of allocation among Members.	Attendance at RFMO meeting even as an observer. Submission to RFMO of evidence of implementing conservation and management measures. Evidence of scientific surveys and research.
10 (3) f. Record of compliance	This has been used by RFMOs to assess a Member's commitment to conservation and management measures	Preparation of standard compliance tables submission of reports by Members and cooperating parties. Financial contribution to WCPFO, payment of assessed contribution on time.
10 (3) h. State which is surrounded with limited exclusive economic zone of its own	This is a new criterion specific to the circumstances of some Members of the WCPFC where a Member's EEZ is reduced by equidistant lines with neighbors. Has not been used by RFMO to date in allocation decisions	Legal delineation of EEZs, GIS data on the size of EEZs. Distribution of fish stocks in the region. Relative dependence data, contribution to GDP
10 (3) i. Non-contiguous groups of islands	This criterion is specific to the WCPFC and does not exist elsewhere in RFMOs. It captures the problem of the difficulty of administering effective control over non-contiguous groups of islands within one nation. This is of particular concern to Kiribati.	GIS data on the relative size of land masses and EEZs. Distances from center of administration to districts. MCS costs for patrols. Distribution of fisheries resources within the island groups. Contribution to GDP.

[8] Statements from WCPF Convention Article 10 (3)

WCPFC[8]	SIMILAR CRITERIA APPLIED IN OTHER RFMOS	PRACTICAL ISSUES REGARDING IMPLEMENTATION
10 (3) j. The fishing interests and aspirations of coastal States	Fishing interests are covered throughout these and other criteria but "aspirations" implies a right to develop fishing capacity in spite of limited historical catch. This has been applied by all RFMOs recognizing the rights of nations to a share of allocation for the purpose of developing their fleet.	Recent commercial catch data. Development plans concerning fleet size, capacity, port facilities and associated industry development (cold storage, canning factories, etc), investment in fishery.

The Convention gives no guidance as to the relative weight that these factors should have in an allocation scheme, nor the fundamental aspects of such a scheme, which we discuss below. We do not have the space to consider all the potential problems and issues raised by Table 2 in our later discussion, and consequently have focussed on the major issues only. Other issues in Table 2 will also have relevance, depending upon the type of allocation scheme and fishery/species under consideration.

Creating compliance with management measures

One of the biggest problems that all RFMOs have faced is one of compliance (or the incidence on non-compliance). If an allocation scheme is perceived to unfairly disadvantage one or more parties, or to create a club of haves and to exclude have-nots, the incentive for non-compliance by the disadvantaged is obvious. Willock and Cartwright (2006) and Rayfuse (2006) give numerous examples from all RFMOs where these factors have undermined compliance.

It is particularly important that some mechanism be provided for States having little current fishing industry but with aspirations to develop one to receive allocation in a way that they perceive to be equitable. It was the inability of IATTC to take into account the aspirations of coastal developing States, and to recognise their right to some allocation by reason of the presence of tuna in their EEZs, that led to the collapse of it's first allocation scheme.

It is also the experience of RFMOs and national fisheries management bodies alike that authorities are most successful in improving compliance when there is a willingness on behalf of states or fishermen to comply, and not simply when levels of policing are improved. The importance of the widespread acceptance of any allocation scheme in generating compliance is likely to be higher than ever for the WCPFC, with its consensus requirement and the inability for any Party to opt-out of the scheme.

Summary

Any allocation scheme needs to reward cooperation and compliance of Members, Cooperating non-Members and non-Members, and disincentivise non-compliance (the so-called free-riders of Munro, 2006). We suggest that this is dealt with through 3 mechanisms.

- Assuring an acceptable and equitable initial allocation;
- Providing mechanisms for the expansion or contraction of the interests of Parties, and for allowing for participation of non-Parties;
- Rewarding good compliance and penalising poor compliance

What to allocate?

RFMOs have in the past allocated both catch (IATTC, ICCAT, CCSBT, NAFO, NEAFC) and effort in terms of days fishing or capacity (IATTC, IOTC, ICCAT). Allocations have been made by both species and by fishing gear.

The advantages and disadvantages of managing RFMO fisheries by effort or catch are the same as managing any fishery by input or output controls. Input controls are easy to monitor and reduce incentives to mis-report catch, but require continual analysis and adjustment to ensure that they deliver effective output as fishing efficiency increases and they are not easily manipulated to reduce bycatch levels. The relative fishing efficiency of all existing and new vessels also needs to be analysed and included in allocation formulae. On the other hand, output controls are easy to set, and relate directly to scientific advice and quantities of fish, but encourage misreporting and are difficult to monitor without observers on each vessel.

The existing situation

At its 2005 meeting the Commission agreed that CCMs would limit purse seine effort to levels no greater than 2004 levels, or the average of 2001 to 2004 levels. In order to ensure consistency with the Palau Arrangement the Commission agreed that Parties to the Nauru Agreement would implement the VDS by December 2007, non-PNA Members would take similar measures to limit effort in their waters by that date and the Commission would implement compatible measures on the high seas (CMM-2005-01).

For longlining the Commission agreed to cap the catch of Bigeye Tuna for each Member of the Commission for the next 3 years at the average annual catch for the years 2001-2004, or the year 2004 in the case of the USA and China. Commission Members that caught less than 2000 tonnes in 2004 are allowed to increase their catch up to, but not exceeding 2000 tonnes in each of the next three years.

Thus effectively, for the time being, the Commission has agreed fleet/gear – specific allocation systems: an effort-based system for purse seiners (to be consistent with the VDS scheme) and albacore (CMM-2005-02 and 03), and a catch-based system for longliners (CMM-2005-01). No effort/catch restriction has been considered for other gears.

The experience of RFMOs with limiting fishing capacity has been mixed, so it would seem that if effort based allocation is to be proposed this should be linked to vessel days rather than simply capacity, as the VDS is. But this leads to a number of additional considerations. A vessel day scheme, implemented over the whole of the WCPO, would require a fully integrated, centralized VMS system for its administration. Even then, effort would have to be adjusted not just to cope with changes in stock status and management targets, but also to recognize the different fishing powers of vessels and increases in fishing power as vessels become more efficient (vessel effort creep).

Dealing with multispecies fisheries and bycatch

There is a major conflict at the heart of any allocation scheme: allocation is simplest by fleet category, but scientific assessment is by species and stock. Thus setting effort or catch limits for a single fleet, and allocating within that fleet, ignores the reality of the mixed fishery situation. Ideally, the fundamental unit of allocation would be consistent with scientific assessments of sustainable (MSY) yield. These are usually expressed in terms of “units of fishing mortality” and can be translated into either catch or effort limits on a stock by stock basis.

There are several solutions to the multispecies dilemma, presented here in order of increasing complexity.

- catch or effort limits could be set for each target species and gear, and allocated to CCMs by fishery/gear type with an allowable bycatch limit also set for each fishery/gear. Under this scheme, when any fishery, or fishery segment (eg a single state's allocation for BET and YFT in the longline fishery), had exhausted its catch of any one target or bycatch species, fishing would stop. The calculations to support such a scheme could be simple or very complicated, depending upon the degree of temporal and spatial resolution required. Possible disadvantages of this scheme are that it might constrain catches of a target species due simply to catches of a bycatch species, it might fix the proportions of the different fleets operating on each resource, and it would require good monitoring systems.

- species-specific catch limits could be set for the WCPO as a whole and allocated to CCMs by species. Again, CCMs would be have to stop fishing once they reached their catch limit of any species, but could adjust their fishing methods to maximise catch value. For instance, a country might get 2% of the BET quota and 5% of the SKJ quota. It could choose to take this quota using any fishing method, but it would almost certainly find that the BET quota constrained the SKJ catch unless it fished unassociated purse seines. Clearly such a quota allocation system is not particularly appropriate for skipjack, where effort regulation is most sensible, and in this case there would have to be some limit on the catches of BET and YFT. One advantage of this and the first option would be that they would be relatively easy to implement, but they would require an effective monitoring system for bycatch such as an observer scheme.

- effort limits could be set for the WCPO as a whole by species, and allocated to CCMs for the WCPO as a whole unattributed by species. Within this global allocation of effort, limits would not be restricted to a particular fishery/gear but fishing with different gears would carry different weight to reflect their relative catch rates of different species. Conversion standards could be calculated each year so that catches of any one species did not exceed sustainable levels. For instance, one longline day could represent 20 BET units, 5 YFT units and 0 SKJ effort unit, whereas one purse seine day fishing on associated sets could represent 5 BET units, 5 YFT units and 10 SKJ units. This system offers the greatest scope for flexibility and would be more easily monitored by the fishery (possibly not requiring full observer coverage). On the other hand the calculations involved would be complex.

This last scheme may allow some additional consideration of the life history stage of tuna in different fisheries. For instance, it could accommodate the fact that purse seine catches of BET and YFT are generally on young life-history stages and longline catches are on adults. Depending on relative rates of natural mortality and growth, the BET units could be adjusted so that, for instance, one tonne of BET in a purse seine fishery is equivalent to 5 BET units in a purse seine fishery and 7 BET units in a longline fishery.

The calculations to support these various allocation schemes will not be simple. However, an appropriate scheme should be chosen that will deliver sustainable catches of all species and enable flexibility in fishing method.

Consideration of an appropriate scheme for the different tuna species and fleets

So, which resources should be allocated and by what means? It is clear from the above that allocation to parties could be made within gear/effort types, or simply for individual species. In reality, a hybrid system will almost certainly have to be implemented, at least at first. WCPFC may also wish to take a staged approach, allocating some of the easier resources first.

The current stock assessment for skipjack indicates that it is not yet being fished at MSY, but it is not necessary that the whole of MSY fishing effort be allocated – it would be perfectly possible to allocate effort at current levels, and to accept that the stock was above the minimum level that could sustain catches at MSY. However, one drawback of allocating effort for skipjack between the purse seine and pole and line fisheries now is that it might not allow flexibility in the future, for example for an expansion of pole and line and a contraction of the purse seine fishery. So an allocation scheme based on total historic skipjack catches across all methods might be favourable rather than individually by fishing method.

The Scientific Committee is becoming increasingly concerned about bigeye and to a lesser extent yellowfin, both of which are taken in the longline fishery and as bycatch in the southwestern Pacific longline fishery targeted on albacore. The purse seine fishery targets both skipjack and yellowfin, and takes as by-catch significant numbers of juvenile bigeye in association with FADs. As a result, there needs to be some consideration of the bycatch of BET and YFT in the purse seine and albacore fisheries, and if the former fishery is to be allocated and managed on the basis of effort, some scheme to control bycatch of BET will be required as we indicated in the previous section. For instance, one could envisage a scheme of individual allocations of purse seine effort and associated maximum bycatch limits; or a scheme with no bycatch limits, but a limit of the amount of effort that can be directed at associated and unassociated sets; or a scheme with no gear-based limits on BET, simply a global BET catch limit for each party which could be taken as bycatch in the purse seine fishery or as a directed catch in a longline fishery.

The skipjack/albacore pole and line fishery has been in decline for some time but it takes relatively no bycatch. WCPFC could allocate albacore for a pole and line and troll fishery in the North Pacific immediately, since albacore is not taken in significant quantities in other fisheries. The surface fishery for albacore in the South Pacific is also relatively clean so an allocation for troll gear in the South Pacific would be possible. Indeed, these might be useful (if not the most urgent) test cases for an allocation scheme.

A further consideration may be the response time of different allocation schemes. There may be more risks of overexploitation of short-lived species such as yellowfin and skipjack tuna if catch management is used rather than effort management, because the generation time of these two species may be too short to allow catch limits to be adjusted fast enough in line with incoming recruitment.

It is difficult to envisage a single approach fitting all the different fisheries; almost certainly a hybrid catch/effort scheme will be required. A sensible way forward would be to ask the Scientific Committee to consider which type of regulation, effort or catch (supplemented by other measures such as gear and area/time closures) would be most appropriate for each species and gear, whether allocation based on species or a species/gear combination would be best, and how bycatch of other target species would be taken into account. This consideration might include data requirements, assessment techniques and migration and could include a Management Strategy Evaluation of the different approaches.

Spatial considerations

Throughout this report we have assumed that the resources of the whole of the WCPO should be allocated. However, there are some situations where this may generate difficulties. For skipjack, bigeye and yellowfin most of the catch is taken in the region between 20^{o} S and 20^{o} N, with most catch being made within the EEZs of Pacific Island Countries (PICs). Allocation of these resources is therefore fairly clear. Albacore, however, are much more widely dispersed and occur not just in the EEZs of PICs but also in the EEZs of states that are more usually thought of as DWF CCMs. CMM 2005-03 makes no comment on latitudinal

distribution in terms of a global effort limitation for North Pacific albacore, but it may be appropriate to consider these EEZs as separate within a global allocation.

Some additional problems with the spatial allocation of quota/effort deserve to be mentioned. Large movements of tuna from high seas to EEZs would significantly complicate the calculations (eg if 90% of one species moved between the high seas and an EEZ and only 10% remained in the high seas). Life history stage is also important in determining whether historical catch in tonnes or in numbers should be used for the calculations. For instance, although purse seine catches of bigeye in EEZs are relatively small in tonnes they are large in numbers and equate to a much larger catch of adults. Thus the bigeye catch currently attributed to EEZs may in fact have a larger impact than it seems.

Summary

The Commission will have to consider what allocation unit is appropriate for each species and area. The guiding principle should be that the allocation system chosen should be flexible, allowing for a changing fleet structure, and allowing catches and effort on some species to be reduced whilst increasing or maintaining catches of other species. The Commission might address the following questions:

- Can sustainable effort/catch be defined for each species, and how has this historically been distributed between fleets/gears (such as purse seine, pole and line etc)?
- Should units be allocated by species or by fleet/gear?
- Should the units of allocation be catch limits or effort limits? Which is most appropriate for which species or fleet/gear?
- How will the allocation scheme deal with mixed fisheries? For instance, if an effort scheme is used for the purse seine part of the skipjack fishery, will bycatch be regulated by a limit on use of associated or unassociated sets, or by restricting effort using the different fishing methods?
- Are there some species and fleet/gear types that will be more tractable to allocate in the short term, and should the Commission concentrate on these?
- What associated monitoring methods are needed with each scheme, and how might the schemes be implemented and managed?

Eligibility for allocation

In this section we consider allocation criteria e and f

The first consideration of any allocation scheme should be eligibility to receive quota or effort allocation. In the case of WCPFC, as with ICCAT, it is clear that a party should be a Member, cooperating non-Member or participating territory (CCM).

We discuss the situation under which a new party can become a cooperating non-Member and participate in allocation and fishing under section 0, but it is clear from Article 32 (4) that “cooperating non-parties to this Convention shall enjoy benefits from participation in the fishery commensurate with their commitment to comply with, and their record of compliance with, conservation and management measures in respect of the relevant stocks”.

Allocation of fishing opportunities is a clear benefit of membership and participation in an RFMO, and it should follow that participation and particularly the payment of assessed contributions to WCPFO should be a major criterion in deciding allocations.

We have mentioned earlier that allocation schemes need to be seen to be equitable, and to reward contributions to the work of the Commission and objectives of the Convention. We would therefore suggest that the following issues are considered, either in determining the initial eligibility or in modifying the simple allocation equations developed in the next section. Thus they might consider

- whether a CCM is participating in the work and activities of the Commission, particularly whether appropriate assessed contributions have been paid within the required time-period. Cooperating non-Members should be required to pay contributions to the Commission if they are expecting to be allocated quota. A penalty for non-payment could be a staged reduction in quota.
- applying penalty on over-catching quota in one year which might lead to a reduction in allocation by twice that amount in the next year, unless there is a system such as the VDS that allows for planned over- or under- catching;
- the extent to which a coastal State has ensured that its conservation measures and compliance is in accordance with the decisions of the Commission for the WCPO as a whole, and therefore the extent to which Articles 7 and 8 have been satisfied;
- the extent to which a fishing state has complied with the conservation measures agreed by the Commission, including (for both Members and Cooperating non-Contracting Parties) their involvement in IUU fishing in the Convention Area (including in the EEZs of coastal States);
- the involvement of a CCM or its vessels in IUU fishing in any other high seas area under the jurisdiction of an RFMO. A penalty of a temporary 50% reduction in allocation might be appropriate for undertaking IUU in any RFMO waters;
- the extent to which Members, cooperating NCPs and applicant Members have supplied scientific and catch data from past and current years that is of direct assistance to the commission of the scientific committee in its work. This would be extremely difficult to factor in to the allocation system, but it could be used as an incentive for non participants building up track record in both fishing and compliance, with the reward not being more quota but participation in the allocation scheme
- In the case of applicant NCPs and cooperating NCPs have, in the past and during the time that they have held provisional quota, contributed financially to the Commission.

The assessment of compliance, beyond adherence to quota, is an extremely difficult one. CCAMLR has for many years been discussing such an assessment without success. One method of dealing with this would be to be very specific about which compliance issues can be monitored, and by what means. For instance, fishing in a closed area/time of year could be identified by VMS data, but using observers to identify the use of prohibited gear, or non-application with mitigation measures (for instance Resolution 2005-01), would be impossible unless the Commission adopts 100% observer coverage.

Summary

We assume that an important pre-requisite for a party to receive allocation would be that the party is a CCM (Commission Members, Cooperating Non-Members and participating Territories). An important secondary consideration might be that the Member should be contributing to the work of the Commission, either financially or in kind, and be complying with the conservation measures of the Commission and the objectives of the Convention.

There are many options for introducing a compliance element in the allocation discussions, but all will require some assessment of compliance. Clearly this is a role for the Technical and Compliance Committee, but there are also decisions on principle to be made such as

- Under what conditions will non-Members be considered to be cooperating non-Members, and under what conditions should CCMs be eligible for allocation of fishing opportunities?
- Are there some issues of non-compliance that the Commission regards as being more serious than others, and which should lead to greater penalties?
- How would the Commission like to see penalties exercised, through the temporary or permanent reduction in allocation and fishing opportunities, of through financial reparation?
- Should CCMs receive similar treatment for non-payment of subscriptions to the Commission?

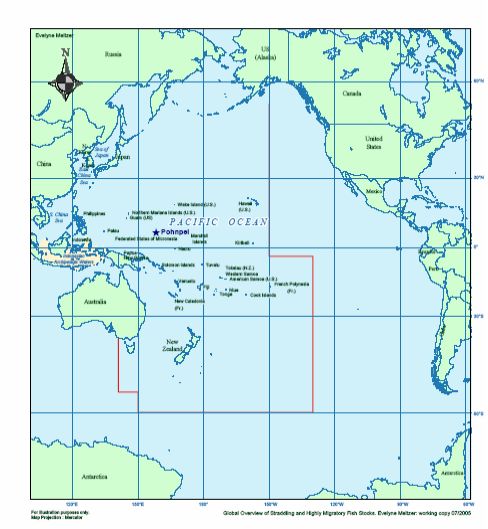
Basic allocation options

In this section we consider allocation criteria a, b, c and d

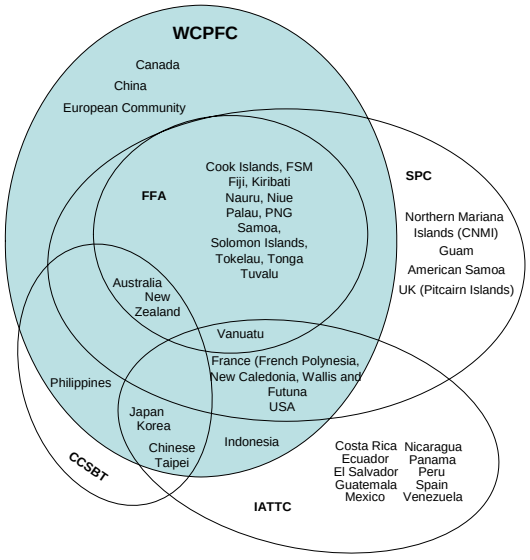
The experience of other commissions is that allocation decisions become more, not less, difficult as resources become depleted. There is therefore a strong argument for WCPFC establishing a mechanism for allocation decisions, and an allocation scheme, well in advance of such situations.

The WCP Convention covers all the waters of the WCPO, whilst acknowledging the rights of coastal States (Figure 1). WCPFC currently has 28 Members and 2 Cooperating non-Members, which are party to a complex nested set of other regional arrangements (Figure 1). Most are coastal States. Of these, 17 are Members of FFA and 8 are signatories of the Nauru Agreement. But some 80% of all purse seine effort takes place within the waters of the 8 Nauru Agreement coastal States (Dunn et al, 2006) which already have complex allocation and access rules, including the Vessel Day Scheme. Given this situation, any allocation scheme is of necessity likely to be complex and will have to balance the interests of coastal States and distant water fishing nations (DWF CCM[9]), and take into account the different fishing methods, fishing fleets and distribution of effort that applies to the different species.

a)



b)



[9] In this context we consider DWF CCM to be any CCM that chooses to fish outside its EEZ, whether in high seas waters or the jurisdiction of a coastal State.

Figure 1: a) the western and central Pacific Ocean (WCPO) showing the Convention Area and b) overlapping membership of various regional organisations.

Fixed allocation or proportional allocation?

Willock and Cartwright (2006) have pointed out that the current freeze on effort/catch levels agreed by the Commission effectively fixes effort at historically high levels. Whilst the agreement on fixing effort does set a useful precedent for the future, thought must be given to how effort would be reduced in future. Experience in other RFMOs has shown that allocation of fixed quota is inflexible and that proportional allocations are more acceptable to most parties. WCPFC should consider the current allocations not as fixed quota or effort but as proportional allocations.

A simple hierarchy of allocation

The current *de facto* allocation implied by CMMs 2005-01, 2005-02 and 2005-03 (see section 3.4.3) is that

- For albacore, each CMM should keep the effort/capacity for their vessels at current or recent historic (2001-2004) levels (CMMs 2005-02 and 2005-03). This could be interpreted as an apparent allocation by flag state rather than on a spatial basis, or a simple cap on the total level of fishing effort.

- For the purse seine fishery, although overall effort levels should not exceed either 2004, or the average of 2001-2004 levels, the specific requirement for effort restriction is limited to coastal State CCMs. No similar flag-state restrictions are required for the high seas, although CMM-2005-01 states that the overall level of purse seine effort in high seas should not exceed 2004 levels. Thus this measure can be interpreted as a partial allocation, with that part receiving consideration being allocated on a spatial basis, by EEZ.

- For the longline fishery for bigeye, the catch limitation *for each CCM* for the next 3 years not to exceed the annual catch in 2004 (or 2001-2004) is an apparent allocation on a flag state basis by historical fishing activity, rather than any spatial basis.

- In all the current CCMs provision is made for the potential development of domestic fisheries by small island developing State and Territory CCMs over and above the general effort/catch restrictions. It is not clear whether these developments would be limited to their own domestic waters or would include expansion on to the high seas.

It is clear from the above that while some *de facto* allocation is implied by the current measures, not all the resources have currently been allocated. It is also clear that the same allocation scheme will not be appropriate for each resource.

Several allocation schemes could be entertained.

a.1. Flag State Allocation: Allocating to CCM on the basis of their historical catch, or historical effort. This is the current approach for longline and albacore fisheries. In general, this will benefit DWF fleets and disadvantage coastal States, but it may the only sensible option with resources that are mostly caught on the high seas. Note, however, that even most longline fisheries have taken place within EEZs, and therefore coastal States would still have access to licence revenue.

a.2. Area-based Allocation: Allocating to CCM on the basis of the historical catch, or historical effort in their EEZ. This is the current approach for the purse seine fishery and attributes priority access to resources to CCMs in whose jurisdiction they occur. This will benefit coastal States but would not be able to cope with historical high seas catches. Thus the need for paragraph 9 of CMM-2005-01 that "the Commission shall implement compatible measures … on the high seas".

a.3. A hybrid scheme, allocating to coastal States on the basis of historical catch (or effort) in their EEZ; and to DWF CCMs allocating the remaining high seas catch or effort in proportion to their historic catch (or effort) on the high seas or more generally within the Convention Area. This would benefit coastal States and might disadvantage DWF CCMs that have a history of fishing in EEZs rather than the high seas. A modification of this scheme could see less than 100% of the historical catch in an EEZ allocated to the coastal State as a fishing nation, with the rest being allocated to the foreign fleets that have traditionally fished in the coastal state's EEZ. This is explored further in the text below.

a.4. A refinement of a.3 would be allocate on the basis of historical effort or catch combined with the distribution of the stock. This would require considerable understanding of the distribution of the various stocks, which may not currently exist. However, it would more closely balance allocations to the distribution and availability of resources.

All these schemes make use of historical catch data and consider the status of the stocks (allocation criteria a and b). They could be applied either within fleet/gear types, or globally across all fleet/gear types. Different species and fleet/gears might use the same, or different scheme.

Scheme a.4 goes further to consider not just the state of the stock but its distribution in time and space. Whilst the Scientific Committee could make a reasonable estimate of the abundance of tuna stocks by zone, an easier and probably reliable proxy might be the distribution of catches. In this case scheme a.4 would become identical with a.2. Schemes a.2 and a.3 consider explicitly the interests and aspirations of coastal States and small island developing States (criteria d and j) balanced against DWF CCMs.

We would emphasise that all these schemes could be used to undertake fishing according to the current patterns – i.e. the current split of fishing effort by CCMs in EEZ and high seas areas. They carry implications about the long-term rights to fish, but not how this fishing might be conducted. That question is considered in detail in the following section (0).

Historical effort and catch data would probably be available to undertake the allocation schemes suggested, but it would have to be available on a fine enough resolution (by EEZ and CCM). It is not at all clear that sufficient information on the distribution of tuna is available to undertake the analysis by stock distribution. This issue could be raised with the Scientific Committee or the SPC.

The Commission appears to be considering the years 2001 – 2004 as baseline years. This may not be unreasonable from the point of view of total fishing effort, but the period may not adequately capture the total distribution of the stock or effort through all ENSO cycles. The Scientific Committee may have to answer the question of which time period would be most appropriate for determining a representative stock distribution.

Examples of the three main allocation schemes are given in Table 3.

Table 3. Examples of the allocation schemes suggested above. The examples consider fishing in three areas – high seas, and the EEZs of two coastal States – by four CCMs – two DWF parties and the two coastal States (CS) whose EEZs are being considered. Quantities in the upper table (a) are the historical catch or effort over the reference period, taken by each CCM in the 3 areas. The proportion of catch/effort occurring in each area is calculated in column 7. The allocation proportions that would result from the different schemes presented in the text are given in the second part of the table (b)

a) Details of catches and stock distribution used in the allocation

	catch history ('000 t or GRT-days) over reference period (for example 2001- 2004) by CCM					
Catch area	**DWF 1**	**DWF 2**	**CS 1**	**CS 2**	***sum***	**Proport-ion of catch by area**
High Seas	10	40			*50*	19%
EEZ 1	80	25	20		*125*	46%
EEZ 2	70	10		15	*95*	35%
sum	*160*	*75*	*20*	*15*	***270***	

b) Proportional allocation to each CCM resulting from application of different schemes to the above hypothetical historical catch/effort distribution.

Allocation scheme	DWF 1	DWF 2	CS 1	CS 2
scheme a.1	59%	28%	7%	6%
scheme a.2	19%	46%	35%	
scheme a.3 (with all EEZ catches attributed to CS)	4%	15%	46%	35%
scheme a.3 (with 50% EEZ catches attributed to CS)	37%	23%	23%	18%

Developing more complex allocations

The various options are not mutually exclusive – different options could (indeed, should) be used for different species. In most cases the possibility of using information on the distribution of species is probably remote, particularly as this would require an understanding of the interannual variability in such distributions.

Those schemes that make allocations based on the historical catch in EEZs as well as by CCM flag state develop notions of "priority access" or "participatory rights" of a resource based on geographical situation rather than on historical investment in a fishery. Although UNSFA does not recognise an explicit right of a coastal state having highly migratory resources transiently in its zone to have a global allocation of the resource that reflects this geography, there is a requirement (Articles 9 and 10) to agree participatory rights and cooperation between EEZs and high seas waters. The early IATTC example shows that ignoring the aspirations of coastal states to develop participatory rights for the high seas part of a stock that also occurs in their waters is unlikely to lead to a stable solution.

Nevertheless, the Commission may decide that it does not want to attribute the whole of such priority access to a coastal State that has not yet developed its own fishing capacity if this would mean that this coastal state could take its catch outside of its EEZ. In the next section we present some options that would allow any CCM's quota to be rented or transferred to another CCM, and to allow this quota to be taken anywhere in the WCPO. In such a circumstance the Commission could limit the size of the "gift" by modifying scheme a.3 to identify a "potential allocation" equivalent to the historical catch to an EEZ, but to only allocate

a certain part of this (for instance, 50%) to the coastal State itself, or only to allow for part of this allocation to be taken outside the EEZ. This possibility would have the advantage of keeping some relative stability in catch distributions; allowing DWF to continue to fish their quota in historical patterns but under the historical access agreements with coastal States; and allowing coastal States to expand their domestic fisheries beyond their EEZs. An example is shown in Table 3.

A further modification of this approach could be to negotiate on an initial allocation split between coastal State and DWF CCMs, and an agreed transition period to another proportional state. For instance, one could start off with a 20% allocation to coastal states rising to 80% or 100% over 10 or 15 years. This change in allocation would have to be managed carefully, probably stepwise (eg by 20% units every 5 years) and it might be dependent upon how much individual coastal states, where they are small island developing states, have genuinely increased their domestic interest.

The Commission could also consider attributing different sorts of rights to different CCMs. The results of such an allocation would then require a matching of different types of right before fishing could take place, depending on where the fishing was to occur (high seas or EEZ). For example, fishing within an EEZ might require both a flag state allocation to harvest and access to a proportion of the coastal state's right over a level of fishing within its EEZ. A coastal state may therefore not have the right to fish its quota on the high seas, but for it to be restricted to the EEZ. Equally, a DWF CCM might have separate rights to fish quota on the high seas and within EEZs, the latter under coastal State licensing arrangements. Further consideration of the *area of application* of allocated fishing rights is given in the next section.

Special consideration of very small States

We can perceive a wide range of options to modify a.3, including transitional phases. We should also consider how some of the other criteria might modify a.3. In particular, allocation based on historical catches and fishing effort, in whatever proportion, may leave some small island developing States/territories/possessions with lower allocations or fishing opportunities than they currently have, or that they perceive would be appropriate considering their dependency on marine living resources and aspirations (Article 10 (3) d and j). It may therefore be worth considering some minimum level of allocation that every small island developing State might expect. This would be somewhat akin to the recognition by ICCAT of the aspirations of a number of coastal, developing and distant water fishing States[10].

Summary

We see essentially two extremes for allocation, the first a Flag State Allocation based on historical fishing effort or catch, and the second an Area-based Allocation. Between these two extremes there are a number of hybrids that could be considered, including our a.3 hybrid in which, firstly there is an allocation between areas under national control and high seas areas, and then coastal states would receive allocation based on the proportion of historical catch or effort that has taken place in their waters and DWF CCMs would receive an allocation proportional to [their] historical activity in the Convention Area. A staged approach, and some adjustment to the relative ratio of the amount of catch that would be allocated to coastal and DWF states, might be considered.

[10] Provided for in ICCAT Recommendation 2002-02 as swordfish quotas as low as 25 t to Barbados.

The key questions that the Commission will need to address to establish an appropriate allocation system

- What balance will be given between allocations to CCMs based on past fishing history and allocations based on the distribution of fishing by area, including in coastal State EEZs?
- In an area-based allocation, how much of the historical effort or catch in an EEZ should be credited to the coastal state, bearing in mind that tuna are mostly migratory between different areas, and how much should be attributed to the flag states that have undertaken the fishing?
- Should coastal states be given allocations based only on the catches in their EEZ, or should an allocation include catches by their vessels outside their EEZ?
- Should DWF CCM allocations consider the total catch or effort by DWFs or just their high seas or EEZ effort?
- Should the same scheme be used for each fishery and species type?
- Should there be a minimum viable allocation for application to very small states, or states with low historical fishing interest but who come under some of the other categories of Article 10 (3)?

Attribution and transfer of allocation rights

In this section we consider allocation criteria a, b, c, d, g

Spatial considerations

In the previous section we constructed a number of possible schemes for allocation of resources, but did not comment on where these allocations could be fished or the ways in which they might be fished. In this section we consider what restrictions there may be on where CCMs can take the catch or effort allocated to them.

Two quite different solutions to this problem could be:

- At one extreme, allocation by **zones**, so that for a coastal State its allocation might be restricted to the EEZ, and for a DWF CCM the allocation would be restricted to high seas waters. If a coastal state was unable to take its quota, it would be able to licence DWF CCMs to take the catch in its waters, to be set against the zonal quota of the coastal State, and enabled through the usual licensing/access arrangements;

- At the other extreme, by **CCM** in which CCMs could take their quota anywhere in the whole of the Convention Area. For a coastal State allocation would not be restricted to EEZ, and likewise for a DWF CCM the allocation would not be restricted to high seas waters. All CCMs would have the ability to fish anywhere in the Convention Area (unless limited by other Conservation and Management Measures promulgated by the Commission), including in EEZs, but as before subject to access/licensing arrangements and this time taking their own quota not the coastal state's quota.

Currently CMM-2005-01 and the VDS envisages zonal allocations for the purse seine fishery and CCM allocations for the longline fishery. The various allocation schemes described above could be used to fix both zonal and CCM rights.

Transfers of quota

Because of the migratory nature of the fisheries and the fluctuations that occur due to environmental factors, it will be essential that any allocation scheme for WCPFC incorporates

some ability to transfer fishing rights or allocations between areas and between CCMs. This is envisaged in the VDS scheme, and has proved practical in other areas (eg bilateral arrangements allow for NEAFC parties to take their quota of atlanto-scandian herring in the EEZs of other parties).

There is a difference, however, between such accessibility and outright transfers and trades of quota. In ICCAT, trades of quota are prohibited but company-level alternative operations are allowed. This means the coastal State may not trade the quota directly with a DWF State and realize revenue directly from that trade; however, a company from the coastal State may charter a vessel from that same DWF State to take the coastal State's quota in its EEZ or on the high seas, thereby realizing revenue at the coastal State company level from the fishing operations. Nevertheless, considering the complex nature of the WCPO fisheries, the different groupings of CCM interests and especially the aspirations of developing states, some consideration should be given to allowing for some wider scope for transfers of quota to be made between CCMs within the WCPFC.

Transfers[11] could be simple exchanges or have some rent attached to them. We would suggest that given the complexity of a transfer system it would be sensible to only allow annual exchanges initially, but longer term transfers might be possible perhaps along the 3-year moving average designed for the VDS. They would not constitute permanent trade, and as such would not be considered to be a tradeable right such as in an ITQ system. The VDS currently provides for temporary transfers of quota between coastal State parties to the Palau Arrangement, not trade. For instance, DWF(a) might own 1000 t of quota of albacore, and CS(a) might own 500 t of quota for albacore but have the domestic capacity only to take 50 t. This situation could arise where the historical distribution of catch or stock was taken into account in the allocation scheme and attributed by EEZ. DWF(a) could rent the rights annually to fish the additional 450 t from CS(a). This allocation scheme would also allow CS(a) to develop its domestic fleet, taking more of the 500 t itself each year, through a number of options including direct investment, joint ventures and chartering. Depending on whether the allocations are zonal or by CCM, these 500 t could be taken by CS(a) (or any recipient of this quota in a transfer) anywhere in the Convention Area.

Most of the current benefit of the fisheries to coastal States derives from selling licences or access fees to foreign vessels to fish in their EEZ. Although local communities should not be ignored (Article 10 (3) b and g) the value of tuna for domestic consumption or artisanal fishing by coastal communities is likely to be small compared to their value in commercial fisheries, both foreign and domestic. This is particularly relevant to the purse seine fishery, but also applies to other fisheries. Any allocation scheme therefore needs to ensure that the interests of coastal States (assured income, deriving from priority access to resources) and fishing states (assured access to fish, whether on the high seas or in EEZs) are preserved.

All of the above allocation schemes would preserve this situation, but the case where more access to resources is attributed to the coastal States in whose waters fishing has historically taken place (a.2 onwards), by allocating quota to each coastal State CCM rather than to the EEZ of that CCM, requires some further examination. Let us suppose that CS(a) has 500 t of quota but usually 1000 t of that species is taken within its EEZ; the other 500 t of quota has been allocated to DWF CCMs historically fishing there. This is scheme a.3 with only 50% of the historical fishing effort in an EEZ attributed directly to the coastal State. CS(a) has only 50 t of capacity and usually trades 450 t with DWF(a) to fish in its zone, deriving revenue from access fees and from rents. It derives access fee revenue from the other 500 t that is allocated to DWF CCMs which usually fish in its EEZ. Let us suppose that in one year most

[11] We use here "transfer" to mean temporary exchange of an allocation or part-allocation, including renting such allocation to a third party. The allocation is a right to a proportion of the available fishing effort or catch. We use "trade" to mean permanent purchase of, or exchange of, such allocation.

of the fish occurs outside its EEZ, in high seas waters and in the EEZ of CS(b). Under a purely zonal allocation scheme the coastal State would derive no or little revenue from this state of affairs. Under a CCM allocation scheme, CS(a) would still be able to rent its 450 t quota to DWF(a) to fish either on high seas or in the EEZ of CS(b), and derive rent revenue. CS(b) would derive access revenue. Access revenue from the other 500 t usually fished in the zone of CS(a) would be lost to CS(a) in that year.

Thus allowing transfer of quota would allow the prosecution of traditional fishing interests by DWF CCMs as well as a more secure revenue stream for coastal States and the possibility for them of developing their domestic fishing industries. To preserve the original allocation proportions, however, it would be important that transfers were only temporary arrangements.

Administering a transfer scheme

Transfers of quota will require a sophisticated administrative system. Some simplification could be achieved through the allocation being made to a group of coastal States such as the PNA and/or to single states outside such systems rather than to all CCMs individually. Where such mechanisms are already set up, such as the Palau Arrangement this would be relatively simple and would remain an internal matter for the states concerned. For other coastal States, similar exchange rules could be developed, but there would have to be an administrative system to keep track of such exchanges. The Secretariat already maintains a vessel registry (CM 2004-01), and could potentially keep track not just of vessels but of Parties' allocations and exchanges. Such exchange rules could also consider changes between high seas quota allocations held by DWF CCM and coastal State allocations.

Throughout all transfers, it would be envisaged that the original holders of the allocation would retain the rights to it. This would preserve the intent of each of the possible allocation schemes suggested above.

Note that under the above scheme, historical fishing in the high seas zone surrounded by the EEZs of Nauru Agreement parties would be included in the high seas component of the allocation.

Consideration of small island developing states

It is important to allow coastal States which are also Developing States the right to develop their own fleets. The above schemes do not envisage that this would include provision for an increase in their allocation proportion as a whole, unless a staged introduction of allocation to coastal states was envisaged. But the schemes should allow those developing states to undertake fishing in the high seas part of the Convention Area, or within other coastal State waters as licensed DWF vessels. This would necessarily entail an equivalent reduction of fishing in their EEZ, but so long as the overall allowance was kept within the coastal State's quota no special arrangements would need to be put in place. In other words, like the ICCAT scheme, the allocation is to the State, rather than the EEZ. As an example CS(a) may choose to rent most of its 500 t quota to foreign interests in 2010, but by 2015 may have built up its domestic fleet to the extent that it can take 400 t and only needs to rent 100 t, and furthermore wishes to take some of that 400 t on the high seas.

For those coastal States with relatively few resources, providing for a minimum allocation (eg some low percentage such as 1%) would allow them to develop their own fishing interests at some future time and ensure their interest in and participation in the Commission. This option would particularly address Article 10 (3) d and j ("the needs of small island developing States, and territories and possessions, whose economies, food supplies and livelihoods are overwhelmingly dependent on the exploitation of marine living resources, and the fishing

interests and aspirations of coastal States, particularly small island developing States, and territories and possessions, in whose areas of national jurisdiction the stocks also occur").

Temporal considerations

The Palau arrangement has put in place a complex rolling 3-year allocation and quota setting scheme. This will considerably complicate the WCPFC allocation because

- it seeks to set total allowable effort (TAE) for the Palau arrangement Parties 3 years in advance.
- It allows transfers of PAE (Party Allowable Effort) between years within a 3-year management period (up to 100% of one year's PAE to another PAE within a management period and 30% PAE between management periods).

Unless the scheme operated by the WCPFC operates to the same timescales, the Palau arrangement allocation within the WCPFC will force over- and under- runs of the WCPFC quotas. The solutions might be

- Develop annual advice for the WCPO, and in the case of purse seines allow the Palau arrangement to use the current season's allocation as a baseline for future 3-year averaging calculations. The system would have to accept under-and over- runs of the WCPO effort and catch targets. Such over- and under- runs would have to be notified in advance by the Palau arrangement administrators (FFA). There would have to be some way of taking the decisions of the Commission to reduce effort or catch in the short term (i.e. shorter than 3 years).

- Create a similar scheme for the whole WCPO, based around a 3-year advice and review period. 3 years is a reasonably sensible period to choose for setting total allowable effort/catch quotas because it would allow the development of scientific advice and would not have to respond immediately to small changes in stock abundance. However, one would have to acknowledge that an agreement reached by less than 30% of the membership of the WCPFC for one fishing method (purse seine) is dictating the management system for the whole of the WCPO.

Any longer-term quota-setting regime would have to be tested for its effects on the ability of the Commission to maintain sustainable stocks of tuna and effect rebuilding of depleted stocks. Again we would suggest a MSE framework for this analysis. For instance, we would expect that the quotas would probably be more conservative for 3-year management than under an annual scheme, so as to buffer the stock against unanticipated environmental, stock or recruitment effects.

Summary

Some of the advantages and disadvantages of the various allocation schemes, considering both zonal and CCM allocation, and combining allocation with an option to transfer quota, are shown from the perspective of fishing states and coastal States below.

Table 4. advantages and disadvantages of the schemes with an option for transfers of quota, from two differing points of view. For a full description of the schemes please refer to section 0.

Scheme	Fishing State perspective	Coastal State perspective
a.1	This scheme gives most credit and priority access to historic fishing states. Access to EEZs would continue to be by access agreement and licences	Coastal States with little historical fishing activity will get few rights of access, but would still control access to their EEZs and derive revenue therefrom.
a.2	If allocation is made on a zonal basis, access to EEZs would still be subject to access agreement and licences. If allocation is made on a CCM basis, access would require renting quota from the coastal State. Access to high seas would be unaffected and still Olympic in nature.	Coastal States would get full priority access to their resources. If allocation is made on a CCM basis they would need to arrange rental and licensing agreements. coastal States would be able to expand their domestic activities, but not onto the high seas where they would not have historical rights.
a.3	All resources would be allocated, and it would be possible for fishing nations to transfer and rent quota from coastal States and each other. Access and licence fees would still be due if quota was to be taken, or rented, from within EEZs. Fishing states could either expand or contract their interest in different fisheries through transfers whilst maintaining their long-term historical allocation rights and revenue.	Coastal States would have equal rights to use their quota as would fishing nations, including expansion of their activities into high seas waters and participation in fisheries not normally found in their waters. It would also allow rental of quota and complete flexibility in fishing opportunities. However, a more complex administrative system would be required.

Spatial transfers of quota such as these might, in an extreme case, lead to concentrations of effort or catch on vulnerable parts of various stocks. Either the Palau parties or WCPFC would have to examine this contingency, and additional management measures such as limits on the effort or catch in subdivisions of the WCPO might have to be entertained. Alternatively, limits on the amount of quota that could be transferred could be considered, for instance 50%.

We suggest that the Commission needs to consider the following issues

- Whether allocated rights will have zonal restrictions or may be fished by all quota holders anywhere in the Convention Area, or whether there should be other, perhaps variable or transitional arrangements on the rules over where CCMs could take their allocated quota.
- Whether allocations may be rented, transferred, or traded, on an annual or multianual basis, and if so what proportion of quota may be traded.
- Whether any transfers, or trades, should be permanent trades or whether they should simply be temporary rents.

Special consideration for Samoa and Kiribati

In this section we consider allocation criterion h

Article 10 (3) includes special provision for Samoa and Kiribati (*(h) the special circumstances of a State which is surrounded by the exclusive economic zones of other States and has a*

limited exclusive economic zone of its own; (i) the geographical situation of a small island developing State which is made up of non-contiguous groups of islands). Samoa might argue that its allocation according to the above formulae is unacceptably small. As we discuss in section 0, there may need to be some consideration of a minimum viable allocation for small states.

Kiribati's problem is that it is a very distributed country. This is likely to generate problems in compliance and MCS rather than allocation.

New Members and developing country interests

In this section we consider allocation criteria a, b, g, j

All RFMOs have suffered from IUU fishing in recent years. There is a general acknowledgement that in order to discourage non-compliance by non-Members, they need to be encouraged to become Members or Cooperating non-Members of an RFMO, and that they only have an incentive to do this either if their ability to fish and sell product is curtailed effectively by the RFMO or if they receive fishing opportunities by joining the RFMO (FAO, 2003).

We have explored the ability for non-Contracting Parties to become Cooperating non-Contracting Parties in section 0. The situation of new Membership is less clear. As we noted in section 0, there is no special provision in the Convention for admitting new Members other than by consensus invitation of the Parties, and no special provision for allocating them fishing opportunities beyond the general requirement in Article 10 (1) (k) that the Commission shall "agree on means by which the fishing interests of any new Member of the Commission may be accommodated".

The issue of allowing for new Members and their receipt of fishing rights is an area where RFMOs have had considerable problems in the past (Willock and Cartwright, 2006; Rayfuse, 2006). Major disagreements arose in the 1990s when the Brazil group of developing countries was seeking to increase its allocation in ICCAT, and when trade measures successfully forced Belize to control its fleet and accede to the Convention but the Commission did not allocate it quota commensurate with its expectations. NAFO and NEAFC have set aside some quota for cooperating non-Contracting Parties, or have stated that new entrants may only be allocated quota in new fisheries, but the economic viability of either of these options is questionable and currently does not seem to be sufficient incentive to encourage compliance from non-Members.

The encouragement of non-Members to become Cooperating non-Members[12] is explicitly included in Article 32 of the Convention, as is the acknowledgement that in doing so these Cooperating non-Members would "*enjoy benefits from participation in the fishery commensurate with their commitment to comply with, and their record of compliance with, conservation and management measures in respect of the relevant stocks*". CMM-2004-02 gives effect to Article 32, in particular emphasising that

- Cooperating non-Member status is granted annually;
- Decisions on granting non-Member status will take into account compliance (both when fishing in the Convention Area and the waters of other RFMOs), the state of the stock and the existing level of fishing effort in the fishery;
- Cooperating non-Member status will not be granted if this will lead to excessive fishing capacity in the Convention Area.

[12] Or, indeed, Members if they are so entitled.

The intent of this measure is clearly to allow for the possibility of new entrants into the fishery, with associated granting of allocation of fishing opportunities, but not to expand fishing effort or capacity beyond that which is sustainable. We might assume that additional benefits such as eventual accession (Article 35) might accrue. However, if this situation happens after initial allocation, the new CCM would have no allocation rights. This is a significant disincentive to cooperation, and would encourage IUU. It must clearly be addressed. A further disincentive arises from the third bullet. We have already noted that there is 10-28 % excess capacity I the purse-seine fishery and also overcapacity in the longline fishery, so there is the possibility that CMM-2004-02 actively prohibits the granting of cooperating non-Member status

Several alternative options present themselves. In all the below it is assumed that a new participant is only considered as such when they have qualified as a CCM.

b.1. Allow new participants to qualify for quota, but only do this by allowing capacity increases in the fleet as a whole, i.e. preserve the absolute quantities of catch for existing parties. This would involve an increase in the total allowable effort or catch, and would not allow the maintenance of conservation targets (i.e. it would allow overfishing unless a TAC was in effect).

b.2. Only allow new participants to own allocations in new or undeveloped resources. This would preserve conservation targets and is consistent with CMM-2004-02 but would have to be limited to skipjack and southern albacore. However, additional expansion of purse seining would not be acceptable except perhaps using non-associated sets or the effort on bigeye and yellowfin would increase.

b.3. Only allow new participants to fish under the flag of a CCM, using the quota of that CCM. This would require charter or joint venture arrangements and would result in the new participant not accumulating historical track record, and never being eligible for allocation in their own right.

b.4. Accommodate new participants within existing allocations. Existing Members would see their share of the quota decline, or could voluntarily give up quota. Alternatively, this might be an option where one CCM experiences a reduction in capacity, in which case the addition of a new participant would be within the allowable effort limits. New participants would be eligible for allocations in their own right.

b.5. Accommodate new participants by allowing for quota to be traded (permanently sold, rather than temporarily exchanged) between existing CCMs and new CCMs. Existing Members would see their share of the quota decline but this could be offset with financial transfers associated with the quota trades. New participants would build up track record and be eligible for allocation in their own right.

b.6. At the initial allocation, set aside a portion of the quota (eg 10%) for future use by new participants or the interests of developing countries. Allow new participants to rent such quota from the Commission. This quota might carry the condition that it can only be used on the high seas or, if used in the EEZ of a coastal state, it would not contribute to the historical record of fish catches used for allocation to that coastal state. A disadvantage of this approach of course would be that eventually the 10% would be used up.

A major consideration here is which mechanism will create the greatest incentive for compliance by non-Members and Members alike. A secondary consideration is the possible expansionist aspirations of developing states. Option 1 we consider to be inferior because it

undermines conservation attempts but all others would achieve these goals to a greater or lesser extent.

Option b.4 is essentially the option chosen by CCSBT in offering quota to Taiwan and Indonesia to encourage them to become cooperating non-Members of the Commission.

Fundamental to options 5 and 6 is the concept of quota trades. This would imply a departure from the ICCAT allocation system where trades, sales or exchanges of quota are prohibited. Such trades or exchanges would need careful control and a sophisticated administrative structure in the Secretariat, and would need to be seen as exceptional activities, possibly only occurring during review of the allocation scheme (section 0).

The possibility that new participants could use quota trades to build up track records, which would later be used to gain quota under an allocation formula, could create a conflict with existing CCMs and will need careful consideration.

Option 6 has some features of the quota ownership/trading model Marco (Crothers & Nelson, 2006) but purchase of quota would only be open to states, not to individual companies. The provision of a buffer quantity of effort or catch, for instance 10%, reduces the amount available for allocation to existing Contracting and Cooperating non-Contracting Parties, but it would have significant conservation benefits in creating an immediate reduction in fishing effort for stocks which are currently exploited at or beyond their sustainable level (BET and YFT) and could provide additional available capacity (as in option 2 above) for stocks which are not yet overexploited. Although both coastal and DWF CCM states would suffer a 10% reduction in their allocation, it might be sensible to limit the application of the new participant quota to the high seas. This would avoid the complication of accounting for new quota being taken within an existing EEZ. Furthermore, there may be a conservation benefit in this because probably few new participants would wish to buy quota on the high seas. Thus, restricting the option to high seas only would reduce the attractiveness to new entrants, and therefore restrict it to those who were really serious about participating with the WCPFC.

The sale of quota could be managed by the Secretariat, perhaps with an auction. New participants could bid for it, as could existing CCMs, with the proceeds being used either to support the Secretariat running costs or to reduce Member contributions.

This option would also allow for some additional compensation to be offered to coastal States whose rents are disproportionately affected by reductions of effort (as is suggested by Reid et al 2006), if funds from the open 10% quota could be redistributed to commission Members disproportionately affected by such changes.

Summary

The Commission needs to pay particular attention to the conditions governing the development of new activities, both for non-Member to become cooperating non-Members, or Members, and for the expansion of activities of developing countries with aspirations to participate in fishing opportunities. A failure to deal with this issue will result in IUU fishing.

We have provided several potential models, including allowing new participants to only exploit fisheries that are below capacity or are being fished below their potential, to allow trades (rather than temporary transfers) of quota from Members to new entrants (subject to the compliance conditions outlined below), or to provide for a small part of any allocation to be held back specifically to allow for new entrants.

The Commission will have to decide

- Under what conditions new entrants are allowed to become cooperating non-contracting parties and / or Members;
- Under what conditions cooperating non-contracting parties or new Members are allowed to participate in allocation formulae;
- How to allow the introduction of new participants without compromising conservation objectives;
- What transfers or trades of quota are allowed to enable the participation of cooperating non-contracting parties or new Members in fisheries.

Negotiation facilitators

The FAO consulation (FAO, 2003) suggested that, rather than solving allocation problems with simple negotiations about quota, RFMOs might make use of "negotiation facilitators" or "financial incentives". It has been pointed out that any limitation of bigeye and yellowfin catches by quota would act to restrict the purse seine fishery disproportionately (because of its catch of juvenile bigeye and yellowfin) unless the Scientific Committee is able to develop effective mitigation measures for these juvenile catches. In these circumstances coastal States would see a drop in license revenue and rents (Reid et al 2006) and might be reluctant to agree such measures unless additional financial compensation was offered to them.

Negotiation facilitators could be constructed as a direct payment to some CCMs by others. In the past some other organizations have used these direct forms of negotiation facilitators. For instance, in the management of north Pacific fur seals high seas fishing was prohibited. All harvest was taken on Islands in Alaska and Canada. Japan and Russia, in exchange for giving up high seas sealing, were compensated by Alaska and Canada from the sale of fur seal pelts. The only processing technology for fur seal pelts was in England, and that country agreed not to process any pelts from any sources other than from the U.S and Canada, hence forestalling any illegal fishing.

Alternatively, additional quota could be offered instead of payment. This mechanism has been used by some RFMOs to encourage non-Members to become cooperating non-Members (for example CCSBT) and we made mention of it in section 0.

With the various new schemes outlined above, including the ability to rent/transfer quota and have genuine rights to quota in all resources by all CCMs, the possibilities for realizing additional compensatory resource rents increases substantially. For instance, instead of offering outright payments, the current catches of juvenile bigeye and yellowfin tuna in coastal State waters could be considered as part of the total catch and therefore included in the overall allocation for those species. If purse seine catches were reduced this would also reduce the catches of bigeye and yellowfin tuna attributed to the purse seine quota, allowing that quota to be used in other fishing methods such as longline. Purse seine quota holders would therefore be able to either change to other methods of fishing for BET and YFT, or they could rent their quota according to the above schemes to other CCMs for capture (eg by longlines). Furthermore, rather than providing a direct payment, if it was necessary the actual allocation of bigeye and yellowfin to coastal States affected by reductions in purse seine effort might be increased.

Review

A fixed allocation formula would mean that a fixed historical effort/catch period was used for the allocations. Of course we can envisage that there will be regular changes to the

assessment of stock status, including changes in stock distribution, which would require application of the formula to new Total Allowable Effort or Catch advised by the Scientific Committee on an annual or similar frequency (a 2- or 3- year frequency might be most appropriate for responding to new scientific advice and maintaining some stability in individual quotas). However, under a fixed scheme new entrants could not be accommodated as applicants for quota in their own right, though as we note above they could still fish on using other Parties' quota or on the Commission's 10% if option 6 was chosen.

In order to accommodate new entrants the allocation formula could be periodically reviewed (CMM-2004-02 in any case envisages an annual review of non-Member status). A regularly reviewed formula would allow the changing aspirations of all CCMs and long-term changes to stock distribution or fleet composition to be taken into account. To ensure some stability one might adopt a system where allocation remains fixed for a certain time period (eg 10 years), and is then reviewed taking into consideration developments in fisheries activity of the parties. This would allow new participants to build up a track record of fishing and compliance within either a traded high seas system or in EEZs, which would only count towards full participation in allocation at the end of the review period. Within the review period the fixed formula would apply.

Finally, it is possible that the promise of a revision period would create an incentive for compliance by all parties with conservation measures, and furthermore it would allow existing quota holders to "loan" their quota at a higher rent than would be achieved if the long-term offer of full allocation rights was not available.

Conceptual map

To assist the Commission with its considerations we offer the following conceptual map. We would suggest that there are a set of issues that need to be addressed as a first priority (1) and a set of issues that are not so urgent, and may need to await decisions on the first priority list (2). We also indicate, in Table 5, likely sources of advice on the various issues.

Table 5. Conceptual map for developing a Western and Central Pacific Fisheries Commission Allocation Scheme.

PRIORITY	ISSUE	QUESTIONS IDENTIFIED IN THIS PAPER	SOURCING OF SOLUTIONS
1	Units of allocation	Should allocation be by catch units or effort Units? Should units be allocated by fishery/gear, by species or globally, or are there different approaches for different species? How will mixed fisheries be considered?	Scientific Committee, perhaps using Management Strategy Evaluation, to establish the most workable solution for all or individual fisheries.
	Eligibilty for allocation	How do non-Members become cooperating non-Members and what obligations do they have? How will issues of compliance, research and data reporting be introduced into allocation considerations?	Commission for policy. Technical and Compliance Committee to establish the principles of compliance assessment.
	Basic allocation options	How will a balance between fishing nations and coastal states be made? Should allocation be based on flag state or area catch histories? What transitional arrangements might be appropriate? How will the aspirations of small island states and developing states be incorporated? Is there a minimum viable allocation?	Technical and Compliance Committee to establish a method of incorporating the various aspirations of all states.
2	Attribution and transfer of allocation rights	Should allocated rights have zonal restrictions, or be available for fishing by a CCM quota holder anywhere in the Convention Area? Should CCMs be allowed to rent, transfer, or trade quota, on an annual or multianual basis, and if so what proportion of quota may be traded?	Commission in respect of principles. Scientific Committee in respect of the distribution of effort and conservation of species.
	New Members and developing country interests	How can non-Members become Members? How can new participants be introduced without compromising conservation objectives? What arrangement will generate greatest compliance from non- Members?	Technical and Compliance committee.
	Other issues	In certain circumstances will negotiation facilitators be useful? Should there be a periodic review of the allocation schemes that are finally produced?	Commission Scientific Committee Technical and Compliance Committee

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Annex Review of Tuna RFMOs

ICCAT

Early decisions on allocation by ICCAT

ICCAT made its first allocation decision in 1982. In the previous year, ICCAT's Standing Committee on Research and Statistics (SCRS) had advised that the catch of western Atlantic Bluefin (BFT-W) should be reduced to a level sufficient only for the on-going scientific monitoring and evaluation of the stock status[13]. The Commission agreed the level of this "scientific monitoring quota" and requested the pertinent countries to agree an allocation[14]. Accordingly, in early 1982, the three fishing countries; Canada, Japan and the U.S. met to resolve the allocation. Japan was included as a distant water fishing nation with a share based on historical catch, while the USA and Canada were included as coastal States. The interpretation of historical catch was significant, because Japan was a relatively recent entrant into the fishery. Taking into account only very recent catch history would have favored Japan; taking a longer term perspective would have resulted in a lesser share. The result was a compromise that allowed Japan a significant share of the quota but not to the level of its recent catch history (Table 1)..

Table 1 Allocation by ICCAT of BFT-W in 1982: the catch was divided according to the average annual share of the catch in the five years preceding the decision. The last column shows the loss or gain of share relative to the proportion of catch in 1982 as a result of the decision.

	1982	1976-80	loss/gain
CANADA	21.55%	10.22%	11.33%
JAPAN	26.29%	57.84%	-31.55%
USA	52.16%	31.94%	20.21%

At the following Commission meeting in 1983, the allocation agreement used the same proportions for three countries but with an increased TAC. The Commission also considered the aspirations of developing fisheries in Brazil and Cuba. These Members were exempt from quota controls provided their catch did not exceed a nominal figure of 50t. Neither nation had reported more than 14t in the years previous to the first allocation decision.

The criteria used for this first allocation decision by ICCAT appear to have included:

- the status of the stock;
- the need for scientific data;
- historical catch reported to ICCAT;
- the relative adjacency of coastal States; and
- the needs of small developing fisheries.

This sharing arrangement continued as the basis of the allocation in subsequent ICCAT agreements from 1983 through to 1991. The relevant documents of the period state that the sharing of quota would continue as previously agreed without actually being quantified. [15]

In 1991, ICCAT quantified the BFT-W quotas in a recommendation that presented the allocations to the three parties for a two year term. This document however made no reference to exemptions for

[13] ICCAT Recommendation 1981-01
[14] ICCAT Recommendation 1982-01
[15] ICCAT Recommendations 1983-01; 1984-01; 1985-01; 1986-01

developing fisheries as previously stated, although the exemption statement was picked up again in the next such sharing agreement in 1994. [16]

Also in 1991, ICCAT added to its administrative structure with the establishment of a permanent Working Group to focus attention on the problem of NCPs fishing in the Convention area. The Commission began a concerted effort to bring non Members of ICCAT into the membership either fully as contracting parties (CPs) or as cooperating non-contracting parties (NCPs). All CPs were asked to contact known NCPs that fished in the Convention Area to encourage them to provide catch statistics to ICCAT and to join the Commission.

The first agreement urged CPs to collect trade data that could be used to quantify and confirm the catch of NCPs. Also CPs were encouraged to take action that would bring under control the reflagging of vessels and transshipments at sea.[17] This agreement encouraged NCPs at least to comply with ICCAT conservation decisions even though they had no input at all into the decision-making process. If NCPs were able to join as full Members, it was perhaps implied that they would do better by virtue of participation in consultations, although there was no direct offer of quota in return. There was also a looming threat of trade-related action against countries that contravened ICCAT conservation measures.

In 1994, ICCAT made its first allocation decision concerning North Atlantic Swordfish SWO-N. The quota sharing formula was a negotiated settlement based on historic catch reported to ICCAT accredited to the nations who actively fished for SWO-N (Table 2).

Table 2 ICCAT SWO-N Allocation [18]

	1995	1996
Canada	1500	1400
Portugal	1500	1400
Spain	6230	5500
USA	3970	3500

Although Japan was not directly interested in SWO, Japanese vessels reported SWO as an incidental by-catch catch in the longline fishery targeting tuna and received recognition for this catch in the allocation. Japan was to limit its catch to 8% of the total Atlantic catch in 1995 and 1996. Other Members were not to increase their catches beyond the 1993 level.[19]

In 1995, ICCAT made its first allocation quota to a CP as a reward for provision of catch statistics and compliance with ICCAT conservation measures. In this case, it was the UK, on behalf or its dependent territory of Bermuda, that was offered a small quota of 4t of BFT-W.[20] This same offer was made to France in 1998 in recognition of a small domestic fishery in the waters of its overseas territory of Saint Pierre and Miquelon.[21] These entry quotas of 4t were not based on reported catch but the level of the quota offered was influenced by the need to provide a small allocation to allow development of a domestic fishery for BFT-W. It also provided a demonstration to other NCP's than membership could have its advantages.

ICCAT allocation recommendations up to the mid-1990s were therefore based on negotiated formulae using historical catch as the major criteria. However, the new comers, including mostly coastal States such as Brazil, were not satisfied with this arrangement. A new arrangement was agreed in 1997 for the allocation of south swordfish for the 1998 season and into the future. In this recommendation (97-7), the Commission gave more weight than in the past to elements such as developing coastal countries, although the historical catches were still the main basis for the allocation. The most

[16] ICCAT Recommendation 1991-01, ICCAT Recommendation 1994-01
[17] ICCAT Recommendation 1991-02
[18] ICCAT Recommendation 1994-14
[19] ICCAT Recommendation 1994-14
[20] ICCAT Recommendation 1995-07
[21] ICCAT Recommendation 1998-07

significant change, however, was that this was the first time the Commission agreed a clear allocation percentage that was not linked directly to a specific TAC, i.e. the percentage would be applied to whatever TAC the Commission would agree upon in later years (Table 3). This practice of longer term percentage quota allocations effectively created a group of inner circle "have-quota" Members and a set of "have-not" quota Members. The former were intent on the maintaining the status quo while the latter were intent on change.

Table 3 Percentage share allocations of the South Swordfish first agreed in 1997

PARTY	*PERCENTAGE SHARE OF SOUTH ATLANTIC SWORDFISH*
Brazil	16.00%
Spain	40.00%
Japan	25.75%
Uruguay	4.75%
Other Contracting Parties:	5.50%
Others	8.00%

The argument given by the "have-quota" group for not expanding the allocation was that there was no room for new entrants while the stocks were in decline. When the stock assessments started to improve, the "haves" argued that the first priority was to return absolute allocations back to historic levels before considering new entrants because they were the nations who had explored the fishing grounds, established the fisheries, spent significant funds on research and management effort whose industries had suffered through long years of low quotas to meet the needs of stock rebuilding.

The "have-not" group has been composed principally of developing coastal States and their arguments for increased quota allocations have been based on UNCLOS. Also, they argue that stock declines were the responsibility of the have-quota group and sacrifices required for stock recovery should not be used as an argument for preserving existing quota allocations. This situation eventually became untenable and the issue came to a head in the late 1990's with the creation of a group of Members led by Brazil that were not satisfied to sit on the sidelines while the others divided the pie amongst themselves year after year. In 1999, the Brazil group forced ICCAT to establish a working group on allocation criteria, with particular regard to the TAC allocation for south Atlantic swordfish stock. The group was charged with the task of studying the matter and returning to the ICCAT Plenary with a consensus recommendation. The working group met over the next two years and was able to return to the Plenary with an all encompassing list of criteria recognizing a balance amongst all competing interests.

The results of these discussions were presented in ICCAT document 2001-25. The document provides:

- qualifying criteria for allocation;
- stocks to which the allocation criteria would apply; and
- criteria to determine the level of quota offered.

The agreement was supported by all Members. A balance of sorts had been achieved between various competing interests. For the "have-quota" group of Members it was great loss to have the criteria apply to all species and not only to stocks that had been rebuilt. For the "have-not" group it was considered a loss to have criteria include emphasis on historical catch, of which they had little.

ICCAT Criteria for the Allocation of Fishing Possibilities[22]

Qualifying Criteria

[22] ICCAT Recommendation 2001-25

The qualifying criteria include two conditions necessary to receive an allocation: firstly the party must be a CP or a cooperating NCP, Entity or Fishing Entity. The qualifications for a Cooperating NCP were identified 2001 as:

- making a commitment and having the ability to apply ICCAT's conservation and management measures and
- complying with the same data submission requirements as are binding on the CPs.[23]

Scope of Application
The allocation document is clear that its application is valid for all stocks under the mandate of ICCAT, without exception.

Criteria to determine the level of quota offered
Within the specific allocation criteria, the agreement included:

- Two conditions related to the fishing activity of qualifying participants: Historical catch of qualifying participants and the interests, fishing patterns and fishing practices of qualifying participants. This wording is consistent with the Fish Stocks Agreement and the WCPFC Convention.

- Two criteria relating to the status of the stock to be allocated: status of the stock relative to MSY or an agreed biological reference point; and the distribution of the stock in EEZ's and on the high seas.

- Eight criteria relating to the status of the qualifying participants including:
  - the interests of artisanal subsistence coastal fishers;
  - the needs of coastal communities dependent on the stocks;
  - the needs of coastal States whose economies are overwhelmingly dependent on exploitation of marine resources;
  - socio-economic contribution of the fisheries to the developing states, especially small island states;
  - the respective dependence on the stock of the coastal State;
  - the economic and or social importance of the fishery for qualifying participants whose fishing vessels have habitually participated in the fishery.
  - The contribution of the fishery to the national food security, domestic consumption, income resulting from exports, and employment; and
  - The right of qualified participants to engage in fishing on the high seas for the stocks to be allocated.

- Three criteria relating to compliance issues and scientific research programmes:
  - The record of compliance or cooperation by qualifying participants with ICCAT's conservation and management measures;
  - The exercise of responsibilities concerning the vessels under the jurisdiction of qualifying participants; and
  - The contribution of qualifying participants to conservation and management of the stocks, to the collection and provision of accurate data required by ICCAT and, taking into account their respective capacities, to the conduct of scientific research on the stocks.

In addition, the document presents nine conditions relating to the application of allocation criteria. It provides direction to the application of these criteria that:

- They should be applied in a fair and equitable manner with the goal to ensure opportunities for all qualifying participants;
- They should be applied on a stock-by-stock basis by the relevant ICCAT Panels;
- The criteria should be applied in a gradual manner in order to address the economic needs of all parties;
- The application should take into account the contributions to conservation made by qualifying participants necessary to restore or rebuild fish stocks;

[23] ICCAT Recommendation 2001-17

- The criteria should be applied consistent with international instruments and in a manner that encourages efforts to prevent and eliminate over-fishing and excess fishing capacity;
- Should be applied so as not to legitimize illegal unregulated and unreported catches (IUU) and shall promote prevention deterrence and elimination of IUU fishing
- Allocation criteria should be applied in a manner that encourages cooperating non-contracting parties to become contracting parties where they are eligible to do so.
- Applied to encourage cooperation between the developing states and other states for the sustainable use of fish stocks in accordance with relevant international instruments.
- No qualifying participant shall trade or sell its quota allocation or part thereof.

Subsequent discussion took place regarding the appropriate weighting for each element, however, the Commission could not agree on what these weights should be.

This comprehensive document was subsequently handed to the ICCAT Panels to implement on a stock by stock basis and its influence can be seen in subsequent agreements where allocations took place.

In 2002, ICCAT made a 25t allocation of BFT-W to Mexico in recognition of its fishery aspirations.[24] Also in 2002, ICCAT prepared an allocation table for BFT-E which included Libya and Morocco who had opted out of previous BFT-E quota agreements due to dissatisfaction over initial allocation negotiations.

Table 4 ICCAT BFT-E Allocations by country 2002 [25]

Year	2003	2004	2005	2006
Algeria	1500	1550	1600	1700
China	74	74	74	74
Croatia	900	935	945	970
EC	18582	18450	18331	18301
Japan	2949	2930	2890	2830
Korea	pm			
Tunisia	2503	2543	2583	2625
Libya	1286	1300	3127	3177
Morocco	3030	3078	3127	3177
Chinese Taipei	pm			
Others	1146	1100	1000	823
Total	32000	32000	32000	32000

This same agreement allowed for the carry-over from one year to the next of any uncaught quota and for the mandatory accounting of catch in excess of quota in the following year as had been practiced by the Commission since mid-1990s. The agreement also included the opportunity for any unused quota originally assigned to Iceland to be fished by the EC.

Also in 2002, in preparing a rebuilding plan for SWO-N, ICCAT included not only the traditional parties but gave specific allocations to Morocco, Mexico, Barbados, Venezuela, Trinidad/Tobago, the UK, France, China and Chinese Taipei in recognition of their existing fisheries and aspirations.[26]

In 2003 (02-03), ICCAT further expanded the previous allocation scheme to include the first comprehensive allocation of the SWO-S stock. The allocation included most of the surrounding coastal

[24] ICCAT Recommendation 2002-07
[25] ICCAT Recommendation 2002-08
[26] ICCAT Recommendation 2002-02

countries and updated the current fishery distribution. The decision included a balance between needs and aspirations of coastal States, DFWN and traditional parties in the fishery.[27]

ICCAT first tried to use effort control to constrain fishing mortality in most of its fisheries, including those on BFT and SWO stocks. However, general recommendations such as "the fishing mortality should not be increased from the recent level", had no effect in conservation. Therefore, when stock conditions continued to decline, the Commission started using catch quota (i.e. agreeing an overall TAC and allocating portions of that among participating countries).

In the late 1990s, the number of boats in the Atlantic fishing for bigeye tuna increased very rapidly due to the entry of new DFWNs (Chinese Taipei and China) and IUU vessels. At the same time, the bigeye stocks became fully exploited. To respond this new situation, the Commission adopted both quota and effort controls limiting the number of longliners in the Bigeye BETY stock. After an initial agreement in 1998 to limit the number of longline vessels over 24 meters fishing BETY[28], an agreement in 2000 set specific caps on both the catch and the size of distant water fleets of China, Chinese Taipei and Philippines.[29] The catch allocation appears to have been intended to be slightly less than the catch reported in recent years for the largest participant, Chinese Taipei who had previously report BET catch in the range of 18,000 to 21,000 t. The allocation of 4000t to China on the other hand appears to have been intended to allow some expansion from their recent previous catch of 400-1300t[30]

The first comprehensive bigeye BEYT allocation agreement appeared in 2004 when allocations were made to and vessels limits imposed on China, EC, Ghana, Japan, Panama and Chinese Taipei. The allocations of quota appear to have been relative to recent previous catches without being restrictive.[31]

ICCAT has also taken punitive action with respect to allocation. In 2005, action was taken against Chinese Taipei for over-fishing, citing violations of quota and laundering of catch. The following requirements were subsequently placed on Chinese Taipei:

- a reduction in fleet size;
- a reduction in quota;
- a strict reporting measure;
- observer coverage; and
- the scrapping of vessels

Additional action in the form of trade action was also identified in the case of if further non compliance[32]. This represented the first decision by ICCAT to severely penalize a cooperating NCP for non-compliance.

To date, ICCAT has been using an Olympic style quota management for the South Atlantic Albacore stock with no specific allocations made to the parties. Since 2000, the parties have made agreements to notify each other of catch and to take measures when 80% of the overall quota is reached. ICCAT has made a commitment to develop a quota sharing scheme at the 2006 meeting of the relevant Panel.

For North Atlantic Albacore, ICCAT prepared its first allocation scheme in 2002 recognizing existing parties in the fishery and set aside a portion of the TAC for other CP's to fish in a small competitive pool.[33] The agreement was extended in 2003 for the period 2004-2006 and included a provision to carry over 50% of any unused allocation from one year to the next.[34]

[27] ICCAT Recommendation 2002-03
[28] ICCAT Recommendation 1998-03
[29] ICCAT Recommendation 2000-01
[30] ICCAT SCRS 2000 BET Table 1
[31] ICCAT Task one data search 1999-2002
[32] ICCAT 2005-02
[33] ICCAT 2002-05
[34] ICCAT Recommendation 2003-06

CCSBT

The CCSBT Convention came into force in 1994. Prior to this, southern bluefin tuna was managed by a tri-party agreement between Australia, Japan and New Zealand. Under this agreement, quota restriction was first introduced in 1986 with allocations to Australia, Japan and New Zealand based on a negotiated settlement. The objective of the new Convention, agreed by these same three countries was to ensure optimum utilization of southern bluefin tuna through appropriate management and conservation measures. CCSBT inherited the allocation scheme previously negotiated between the original Members. The documentation relating to this original allocation is not available to the public, but it seems to have been based on the historic catch with some consideration for geographical accessibility.

Other longline countries, including Indonesia entered the fishery in the early 1990s. CCSBT invited all the new fishing countries to join the Commission and developed quite restrictive rules for quota allocations for new Members. In 1995, it was determined that an allocation to a new entrant would be calculated on basis of catch records prior to the CCSBT convention in 1993, using figures for 1991-93 period, taking into account any past voluntary catch reductions by new entrants. This latter point was included to quantify the level of compliance with Commission conservation measures that applied to Members during the same period. The three original parties to the Commission had reduced their catch from 28,841t in 1986 to 11,750t in 1993. The thinking appears to have been that any new entrant would have to demonstrate that it had reduced its catch by the same proportion as the Members and had not taken advantage of the reductions taken by Members to increase their national catch of SBT.

CCSBT agreed the factors included in the calculation of allocations would be:

- relevant science;
- the need for orderly and sustainable fisheries;
- the interests of coastal States through whose waters SBT migrates;
- the interests of parties whose vessels fish for SBT;
- the contribution of parties to conservation and research; and
- other factors that the Commission deems appropriate[35]

In 1996 Korea responded to this offer stating its willingness to cooperate but refused to join the organization because the quota offerings to new entrants were too low.

The scientific stock assessments of SBT carried out by scientists of three countries have been very controversial and some of the process and discussion have not been transparent There was no agreement on a TAC for SBT in 1996 resulting in national quotas set unilaterally by Members, based on 1995 decision. Japan reported its intention to fish beyond its traditional level in an experimental fishery based on Japanese interpretation of stock status[36]. By 2000, there was a growing list of NCPs interested in fishing with still no agreement among Members on a TAC or national allocations. In 2001, a preliminary TAC was finally set based on scientific advice but still there was no agreement on binding national quotas.[37]

Korea and Taiwan became Members in 2001 and in 2002 respectively. Taiwan joined what was called the Extended Commission where most of the Commission's work was conducted thereafter. An allocation agreement was reach in 2003 after a series of meetings to prepare a formula based on interpretation of scientific advice concerning the stock status. With this, a TAC was set with national allocations:[38]

- Australia: 5265t
- Taiwan 1140t
- Japan 6065t
- NZ 420t

[35] CCSBT Second Annual Meeting 1995
[36] CCSBT Fourth Annual Meeting part two 1998
[37] CCSBT Eight Annual Meeting 2001
[38] CCSBT Tenth Annual Meeting 2003

- Korea 1140t
- Cooperating NCP 900t of which 800t offered to Indonesia

This allocation decision of 2003, including a setting aside a quota pool of 900t for NCPs was sufficiently balanced to encourage new membership. The Extended Commission offered 800t to Indonesia to encourage cooperation with conservation objectives of the Commission.

In the same context, an offer of a 30t was made to South Africa in 2004 to recognize initiation of its tuna longline fishery and to encourage South Africa to join CCSBT as a full Member. Also the Extended Commission offered a 50t allocation to the Philippines recognizing it was compliant with obligations as an NCP [39].

At its 2005 meeting, the CCSBT Extended Commission prepared a statement of criteria for assessment of cooperating status with the Commission. It was agreed that cooperating status would be assessed on the basis of commitment by the party to:

- carry out the objectives of the Commission;
- abide by its conservation measures;
- take appropriate action to ensure fishing activities do not diminish the effectiveness of the conservation and management measure of the Commission;
- transmission of a review of its SBT fishery and all data that Members provide;
- ensure stats documents are completed; and
- negotiate with the Commission regarding other criteria for achievement of cooperating non-Member status.

Essentially CCSBT offered to consider an appropriate SBT allocation for an NCP if all the conditions of cooperating status were met. South Africa was made a secondary offer of 45t recognizing the importance of their participation but noted the lack of full cooperation with data requests by the CCSBT.[40]

Aside from the issue of allocation, there have been significant efforts made to focus on the market with the implementation in 2000 of the CCSBT Trade Information Scheme (TIS) which documents trade in SBT by CP's and NCP's

At its Tenth Annual Meeting in 2005, CCSBT agreed a Management Procedure for calculating the conditions for setting and adjusting Total Allowable Catches (TACs) by way of a mathematical algorithm[41] which had been developed by its the Scientific Committee. The procedure takes into account changes in biomass and is meant to provide some stability to the SBT fishery over the longer term. The model accounts for different fishing years of the Members of the CCSBT and makes assumptions on the fishing period for cooperating non-Members. One outstanding issue is the requirement to prepare an analytical procedure for calculating estimates of the catches of non-cooperating non-Members (i.e. the unregulated fraction of the IUU catch). It is the intention of the CCSBT to include these data in the evaluation of TACs. Also on-going is the preparation of "meta-rules" which are intended to show when exceptional circumstances exist in terms of recruitment and Catch Per Unit Effort (CPUE) trends. The purpose of this process is to assist the CCSBT in discussions regarding agreements on TACs and it has implications for future national allocations.

It is not expected that the management procedure under development will provide any specific adjustments to the national shares which remain as originally negotiated in 1986.

IATTC

[39] CCSBT Eleventh Annual Meeting 2004
[40] CCSBT Twelfth Annual Meeting 2005
[41] CCSBT Report of the Tenth Meeting of the Scientific Committee Attachment 6

The first management decision for tuna by IATTC was in 1966, and the first allocations were made shortly thereafter. The history and experience carries some important lessons for the WCPFO consultations (Jim Joseph, pers comm.).

The form of management was a global TAC on the catch of yellowfin. The fishery was operated on a first come first served basis: each nation was allowed to catch as much as they could until the season was closed in anticipation of taking the TAC. At that time, nearly all of the catch was made by vessels flying the U.S. flag. The coastal Latin States, which had only a few vessels, or none at all, but had aspirations to enter the fishery, contended they could not compete with the large U.S. fleet, nor could they acquire loans to build vessels since the financial institutions did not want to loan money to build boats for a fishery that was fully exploited and under management controls.

The non-US coastal states negotiated for country allocations and used as a criterion their sovereign rights to control access to the tuna occurring in their EEZs (bearing in mind this was at the time of the on-going negotiation of UNCLOS). Because the US did not want to prejudice its position on tuna in the ongoing negotiations and their position that highly migratory species did not fall within the jurisdiction of a coastal state, they did not agree to allocations using coastal state jurisdiction as a criterion. The U.S. did agree, however, to the allocation of quotas on the basis of economic need.

Each year there were protracted negotiations for allocations, and each year the allocations were increased and the criteria used defined in terms of economic need or economic hardship, but never sovereign rights. Finally, because the U.S. would not agree to further allocations to coastal states the negotiations broke down, the conservation controls were abandoned, the yellowfin stock was overfished, and the IATTC came very close to being abandoned by the parties (Bayliff, 2001).

An Olympic fishery soon developed. When the annual accumulated catch reached a certain level, the Director of Investigation closed the fishery. The boats which left port before the closure date were able to fish that trip and return to port after the closure came into effect. When the closure was announced there was sufficient time for almost all the boats to return to port, unload their catch and leave port before the closure deadline. This system created an incentive to increase the carrying capacity of each vessel and the closure date became earlier and earlier, until the fishery was opened only for a few months each year, and each boat could undertake just one trip.

The declining condition of the bigeye stock was recognized by IATTC as far back as 1998. At the time, surface bigeye catch had increased from 5,000 to over 50,000 tonnes, while longline catch, which had a long history of operations declined drastically from over 100,000 to less than 50,000 tonnes. The surface bigeye catch was mainly on Fish Aggregating Devices (FADs) and comprised small fish and a substantial bycatch of yellowfin and skipjack. IATTC concluded that action should be taken to reduce the total surface bigeye catch to 45,000t in the EPO[42]. The regulation was aimed at both reducing the total catch and increasing the yield per recruit (by reducing catch of very small fish). The main management method adopted by the Commission was periodic closures of the fishery. Table 5 shows the recent trends in catches of the three main species.

Table 5 Recent catch records, IATTC

[42] IATTC Resolution C-98-05 on Bigeye June 1998

	Yellowfin—Aleta amarilla (YFT)						Skipjack—Barrilete (SKJ)						Bigeye—Patudo (BET)					
	PS		LP	LL	OTR	Total	PS		LP	LL	OTR	Total	PS		LP	LL	OTR	Total
	Ret.	Dis.					Ret.	Dis.					Ret.	Dis.				
1976	215,106		3,280	15,632	353	234,371	124,958		11,256	130	583	136,926	17,214		75	54,290	7	71,586
1977	184,922		1,841	12,355	263	199,381	84,606		7,521	112	1,872	94,111	11,162		2	74,086	0	85,250
1978	158,800		3,887	10,188	1,120	173,995	172,293		6,048	61	1,273	179,675	18,539			70,659	0	89,198
1979	170,648		4,790	11,473	225	187,136	133,695		6,345	33	1,430	141,504	12,097			55,435	1	67,533
1980	143,042		1,480	13,477	849	158,848	130,912		5,226	26	1,945	138,109	21,939			64,335	130	86,404
1981	168,235		1,477	7,999	805	178,516	119,165		5,906	20	911	126,003	14,922			53,416	2	68,340
1982	114,754		1,538	10,961	283	127,536	100,498		3,760	28	383	104,669	6,939		42	53,365	0	60,346
1983	83,928		4,007	10,894	1,182	100,011	56,851		4,387	28	883	62,149	4,575		39	60,043	97	64,754
1984	135,785		2,991	10,345	357	149,478	59,859		2,884	32	838	63,612	8,860		2	46,394	17	55,273
1985	211,460		1,069	13,198	309	226,036	50,829		946	44	182	52,002	6,056		2	66,325	21	72,404
1986	260,512		2,537	22,807	292	286,148	65,635		1,921	57	135	67,748	2,685			102,425	9	105,119
1987	262,007		5,107	18,911	335	286,360	64,019		2,233	38	176	66,465	1,177			100,121	16	101,314
1988	277,293		3,723	14,659	958	296,633	87,113		4,325	26	663	92,126	1,535		5	72,758	6	74,304
1989	277,995		4,145	17,032	564	299,736	94,935		2,941	28	1,027	98,931	2,031			70,963	0	72,994
1990	263,251		2,675	34,634	1,724	302,284	74,370		824	41	1,885	77,120	5,920			98,871	15	104,806
1991	231,257		2,856	30,729	1,247	266,089	62,229		1,717	33	1,916	65,895	4,870		31	104,194	21	109,116
1992	228,121		3,789	18,526	3,276	253,712	84,283		1,956	24	1,091	87,354	7,179			84,799	21	91,999
1993	219,494	4,722	4,950	23,808	3,700	256,674	83,829	10,588	3,772	62	2,271	100,521	9,657	645		72,473	59	82,834
1994	208,409	4,691	3,625	29,545	1,978	248,248	70,127	10,472	3,240	73	730	84,642	34,900	2,261		71,359	808	109,327
1995	215,434	5,275	1,268	20,054	2,570	244,601	127,045	16,378	5,253	77	1,917	150,670	45,319	3,251		58,256	1,381	108,207
1996	238,606	6,314	3,761	16,426	1,356	266,463	103,976	24,837	2,555	52	1,512	132,932	61,312	5,689		46,957	746	114,704
1997	244,878	5,516	4,418	21,448	2,004	278,264	153,456	31,558	3,260	135	121	188,530	64,270	5,482		52,571	23	122,346
1998	253,959	4,718	5,084	14,212	2,166	280,139	140,631	22,856	1,684	294	208	165,673	44,128	2,853		46,347	617	93,946
1999	281,920	6,638	1,783	10,651	3,947	304,939	261,564	26,851	2,044	201	1,409	292,070	51,158	5,176		36,405	541	93,280
2000	254,928	6,796	2,431	22,771	2,034	288,960	205,130	26,415	231	68	67	231,911	94,115	5,649		47,506	269	147,539
2001	382,023	7,808	3,916	28,475	1,326	423,548	144,059	13,233	448	1,214	468	159,422	61,404	1,294		68,698	47	131,443
2002	412,389	4,019	950	23,873	1,604	442,835	153,394	12,625	616	251	299	167,185	57,457	937		74,396	12	132,802
2003	380,582	5,338	470	22,462	4,295	413,147	275,042	23,302	638	600	2,835	302,417	54,137	2,260		60,272	21	116,690
2004	269,918	2,853	1,884	10,196	3,436	288,287	198,067	16,420	528	515	1,138	216,668	67,179	1,612		40,614	189	109,594
2005	268,156	3,142	2,067	128	1,555	275,048	260,268	18,909	1,039	16	1,418	281,650	70,294	1,899	*	32,082	*	104,275

Also in 1998, IATTC set a quota of 210,000t for Yellowfin in the Commission's Yellowfin Regulatory Area CYRA[43]. Rather than concentrate on control by national allocations of catch quota, IATTC concentrated on placing limits on fishing effort by way of limits on both the number of vessels and the carrying capacity of vessels catching the species of concern.

The first allocation decision taken by IATTC was to establish a maximum capacity for all vessels fishing tuna using purse seines in the EPO. This procedure was aimed at the management of yellowfin tuna, which is the most important target species for the surface fishery in the EPO. However, the application of the regulation was expected also to help the management of by-catch species such as bigeye tuna. Although national catch quotas were not assigned, Members agreed on a set of criteria to establish national maximum carrying capacities for contracting parties:

- the catch of national fleets 1985-1998
- the amount of catch historically taken with the zones where each state exercises sovereignty or national jurisdiction;
- the landings of tuna in each nation;
- the contribution of each state to the IATTC conservation program.[44]

These criteria capture the concepts of not only catch history, but geographic distribution of the catch and the landings in nations which may include landings by foreign flagged vessels. This last mentioned criterion is very useful to nations trying to replace foreign effort and landings with domestic effort in their waters while using the foreign effort to increase their share of the allocation. The Agreement also recognizes the right of development by nations aspiring to increase their catch allowing development to a threshold of 6,000t carrying capacity. At the same time IATTC established a Permanent Working Group to annually review purse seine PS capacity.[45] Although the Permanent Working Group met over the ensuing years, IATTC has yet to develop a specific list of national carrying capacity limits based on these criteria but has chosen to freeze the vessels of the major fleets participating in the purse seine fishery to a registry created in June 2002.[46]

In 2001, IATTC established a "closed" registry of vessels recording carrying capacity of each vessel to be used in calculations of fishing effort. IATTC requested staff to prepare elements on how a fishing-

[43] IATTC Resolution C-98-04 on Yellowfin Tuna June 1998
[44] IATTC Resolution C-98-11 on Fleet Capacity October 1998
[45] IATTC Resolution C-98-11 on Fleet Capacity October 1998
[46] IATTC Resolution C-02-03

days quota system might be implemented including alternatives to the capacity system, qualifying criteria for allocation of capacity and criteria for transferring vessels[47]. This register became the list of purse seine vessels permitted by the all the major fleets of large vessels to fish in the Convention Area. The minor fleets were held to limits placed in 1998 on growth of their fishing capacity.

As mentioned previously, the closed registry of vessels was mainly intended for management of yellowfin tuna. However, IATTC also recognized the connection between juvenile bigeye and seining on floating objects. The first closure was put into place in 2000 with a three-month ban on fishing on floating objects[48] This closure was not renewed in 2001.

Although IATTC set a target of 135,000t carrying capacity[49] for the purse seine fleet, it continued to use the register of fishing vessels as its main management tool along with seasonal closure and a ban on fishing on floating objects. Status on the register has been used as a punitive tool with loss of status resulting in the loss of fishing privileges. In 2001, IATTC passed a resolution that included the threat to remove from the regional register vessels that were not operating under the jurisdiction of a Member or and Cooperating Non-Member.[50] Under the restrictive conditions in place for restoration of vessels to the register and approval of new vessels, this was, in effect, an allocation decision because by having a vessel removed from the register, the flag state lost a portion of its allowable fishing capacity, if only temporarily, while an appropriate replacement vessel was approved by the IATTC.

In 2002, IATTC again resolved to develop a plan for the management of the fish carrying capacity of Member nations. The target overall carrying capacity was set at 158,000 m³ and IATTC confirmed that the regional register would be used to monitor the capacity of each Member. The agreement also set developmental limits on Costa Rica, El Salvador, Nicaragua, Peru and Guatemala[51]

In 2004, IATTC set the requirements for attaining the status cooperating non-contracting party. Prospective cooperating parties had to meet criteria established in three areas: [52]

- Information: Parties must provide full data on historical catch in the IATTC Area; annual catch and size distribution; and communicate current fishing presence and research programs in the area.
- Compliance: Parties must respect all conservation measures of the IATTC-AIDCP; capacity limits in place for tuna vessels; measures taken to ensure compliance, observers, inspections at sea and VMS; and provide an appropriate response to alleged violations of IATTC.
- Participation: Parties must participate at plenary and scientific meetings as observers; confirm a commitment to the Commission's conservation and management measures; and inform Commission of measures taken to ensure compliance.

Also in 2004, IATTC tightened the criteria for cooperating parties by adding that when considering an application for cooperating status, IATTC will consider the compliance of the party with the requirements of other RFMOs.[53]

Meanwhile, IATTC continued to refine its closure area for purse seining with an August 1 - Sep 11 closure area for seining in 2003[54], and then shifted in 2004 to a choice of a 41 day closure period for purse seines: either August – Sep or November – December. [55] Parties have the choice of choosing one or other of these two periods but must notify the Commission of their intention. The Resolution remains in effect after the notification no matter what flag the vessels flies such that it cannot change flags and continue to fish. This was implemented in 2004 with one Member (Columbia) implementing its own unilateral measures inconsistent with the Resolution.

[47] IATTC Resolution C-00-01 on Fleet Capacity
[48] IATTC Resolution C-00-02 on Bigeye
[49] IATTC Resolution C-00-10 on Capacity of the Tuna Fleet Operating in the EPO
[50] IATTC Resolution C-01-02 on Fishing by vessels of Non-parties
[51] IATTC Resolution C-02-03 on Capacity of the Tuna Fleet Operating in the EPO
[52] IATTC Resolution C-04-02 on Criteria for Attaining the Status of Cooperating Status
[53] IATTC Resolution C-04-01
[54] IATTC Resolution C-03-12 on Conservation of Tuna in the EPO
[55] IATTC Resolution C-04-09

Since the lifting of the closure of FADs fishing in 2001, the Commission has sought ways to protect juvenile bigeye caught in association with FADs. Scientists have recommended setting a vessel maximum limit of catching bigeye for seiners based on the fact that only about 15 seiners contributed almost all the juvenile catch of bigeye. However, this proposal was rejected in 2005 and again in 2006, hence no management plan is currently in place for bigeye, although those for yellowfin which help to some extent with the protection of small bigeye.

Although purse seine activity is managed by closure periods and carrying capacity of the nation's fleet (thou designed for yellowfin management), the IATTC bigeye longline activity is managed by quota. For 2004-2006, the longline fleets are limited to[56]:

China	2,639t
Japan	34,076t
Korea	12,576t
Chinese Taipei	7,953t

This is based on the average catch during the period of 2000 through 2002.

The IATTC vessel registry has some administrative problems including:

- The accurate measurements of capacity (gross volume vs net volume);
- Temporarily sealing a fish well to reduce the capacity during inspection;
- Using non-fish well space for carrying fish; and
- Disagreements about whether or not national fishing capacity is transferred with a vessel when it is sold and re-flagged.

IOTC

Like IATTC, the IOTC used restrictions on vessel size; this time expressed as Gross Registered Tonnage as a means to limit the fishing effort of the fleets fishing in the IOTC Convention Area. However, these were not really a strict regulation but just a general recommendation not to increase the capacity. Hence they are not complied with or put into written regulations.

As early as 1999, the IOTC recognized the need for such measures and agreed to take action to limit fishing capacity of the fleet of large-scale vessels fishing for tropical tunas in the IOTC area of competence in an effort to ensure the long-term sustainable exploitation of tuna stocks. Seeking specific scientific advice, the IOTC made a commitment at its 2000 meeting to set a limitation of the capacity of the fleet of large-scale tuna vessels to the appropriate level. At the same time IOTC committed to adopt in 2000 a season and area closure of the use of floating objects in the IOTC area of competence on the basis of the scientific.

Specifically IOTC asked the Scientific Committee to present, at the Session of IOTC in 2000, recommendations on:

- The best estimate, on the basis of existing data and analyses, of the optimum fishing capacity of the fishing fleet which will permit the sustainable exploitation of tropical tunas.
- Precise areas, periods and conditions for a moratorium on the use of floating objects that would bring about a reduction of the fishing mortality of juvenile bigeye.

At the same time IOTC urged its Members and cooperating non-Members to fulfill their obligations concerning the transmission of the list of vessels fishing for tropical tunas according to the Resolution of the Third Session.[57]

Based on advice from its Scientific Committee, IOTC took action at its annual meeting in 2003 to limit the capacity of all fishing gear catching bigeye tuna. Contracting Parties and Cooperating non-Contracting Parties (CPCs) having fleets of more than 50 vessels on the 2003 IOTC Record of Vessels, were capped at those fleet sizes. IOTC also limited the major fleets to the Gross Registered Tonnage represented by these vessels ensuring the replacement vessels could not increase GRT. [58]

[56] IATTC Resolution C-04-09
[57] IOTC Resolution 99/01
[58] IOTC Resolution 03/01

The IOTC Members with fleets of fewer than 50 vessels over 24 meter in length were exempt from this agreement but by virtue of this agreement had to prepare a fleet development plan to express their aspirations under the provisions of IOTC Resolutions dealing with fleet capacity. The plans were to include the type, size and origin of the vessels and the plan of their introduction into the national fishing fleet. In relation to the foregoing, the Commission took note of the interests of the developing coastal States, in particular small island developing States and territories within the IOTC Convention Area whose economies depend largely on fisheries and gave those Members room for expansion in spite of the need for an overall reduction in fishing capacity.

In 2004, recognizing that further measures were necessary to protect bigeye, IOTC made its first specific allocation decision regarding catch. Contracting and co-operating non-contracting parties (CPC's) were now to limit their catch of bigeye tuna to their recent levels of catch reported by the Commission. Moreover, the IOTC took specific action to request Chinese Taipei to limit their annual bigeye catch in the IOTC area to 35,000t. This measure may be considered to be limiting since the annual catch of Chinese Taipei was about 100,000t for the period 1996-2003[59]

In 2005, IOTC made a commitment to develop at its 2006 meeting a three year plan for placing limits on the catch of the major fishing nations (CPC's catching more than 1000t of bigeye tuna.) The deadline for implementation of this plan is May 1, 2009.
Again those CPC's catching less than 1000t were exempt but were committed to the provision of a development plan. [60]

An IOTC working group, the Working Party on Management Options, was established to develop this plan and provided regular status reports to the Commission.[61]

Non-contracting parties requesting co-operating status must provide the following information to the Commission in order to assess their application:

- Data on its *historical fisheries* in the IOTC Area, including nominal catches, number/type of vessels, name of fishing vessels, fishing effort and fishing areas;
- All the *data that Contracting Parties have to submit* to IOTC based on the resolutions adopted by IOTC;
- Details on *current fishing presence* in the IOTC Area, number of vessels and vessel characteristics and;
- Information on any *research programmes* it may have conducted in the IOTC Area and the information and the results of this research. [62]

An applicant for Co-operating non-Contracting Party status must also confirm its commitment to respect the Commission's conservation and management measures and inform IOTC of the measures it takes to ensure compliance by its vessels of IOTC conservation and management measures. These conditions are consistent with the requirements for cooperating status at the other tuna RFMO's.

The Compliance Committee is responsible for reviewing requests for co-operating status and for recommending to the Commission whether or not an applicant should receive co-operating status. In this review, the Compliance Committee considers information regarding the applicant available from other RFMOs as well as data submission of the applicant. The IOTC is taking these inter-RFMO cooperative steps so as not to introduce into the IOTC Area the excessive fishing capacity of other regions or IUU fishing activities by granting cooperating status to the applicant.

The latest IOTC meeting in 2006 passed a Resolution[63] which calls for Members to limit fishing capacity to 2006 levels but recognizes fisheries development plans submitted, vessels under construction and authorizes Members to rebuild reduced fleets to 2000 levels.

[59] IOTC Data Summary 1994-2003
[60] IOTC Resolution 05/01
[61] IOTC Resolution 05/06
[62] IOTC Resolution 03/02
[63] IOTC 06/05

CCAMLR

CCAMLR has studiously avoided the issue of allocation by restricting itself to assigning area-based TACs only. This approach acknowledges the existence of coastal State jurisdiction for some of the subantarctic islands, either overtly (for Heard Island (Australia), Kerguelen and Crozet islands (France), Bouvet (Norway) and Prince Edward and Marion Islands (South Africa)) or tacitly (South Georgia (UK)). For these resources the rights of coastal States are therefore acknowledged, and there are very few stocks that straddle both EEZs and high seas waters.

Both krill and toothfish fisheries take place in high seas waters away from the sub Antarctic islands where national sovereignty is acknowledged. These are krill (in the southern Atlantic) and toothfish (in the southern Indian ocean and the Ross Sea). For these latter fisheries, again CCAMLR operates in effect an Olympic fishery but with some restrictions on effort.

For the krill fishery there is no effective restriction on effort or allocation between Members. Although Members are required to notify their intention in advance this is only a nominal notification, and cannot be regarded as an allocation.

For the toothfish fishery in the Ross Sea a rather different scheme is in operation. Because the fishery is classified as an “exploratory fishery” all vessels and Members intending to fish are required to notify their intention in advance. These intentions are then confirmed in the legally binding CCMALR Conservation Measures (eg CM 41-09 (2005) (see CCAMLR, 2005) which specifies fishing opportunities by Member, giving the number of vessels of each that is allowed to fish). This is not, however, a negotiated allocation, simply reflecting the applications of intent that have been made by Members. The conduct of the fishery is still Olympic – all vessels report their catch to the Secretariat and the fishery is closed when the TAC is taken – but at least effort is restricted to those declaring an intention. Declaration itself carries a financial cost, a levy, that is non-refundable and helps to finance the cost of administering the scheme.

CCAMLR has not adequately dealt with the issue of new Members. Article VII (2) of the Convention states that whilst any state can accede to the Convention, membership shall only be open whilst that acceding state is engaged in research or harvesting activities in relation to the marine living resources. Namibia became a Member in 2002 on the grounds that its ports were trading toothfish, and it has remained a Member since despite the fact that it is not actively engaged in research or harvesting. The attempts of other states to become Members, or to engage in harvesting on its own, have been frustrated by the apparent “catch 22” of Article VII that membership is contingent on harvesting, but harvesting is not allowed without membership. Thus CCAMLR has been fairly clear about wanting to restrict harvesting activities to Members only. This is not an open allocation policy.

NAFO

General History

The International Convention for the North Atlantic Fisheries (ICNAF), predecessor to the North Atlantic Fisheries Organization (NAFO), came into being in April, 1951 in Washington, DC and was attended by five signatory governments (Canada, Denmark, Iceland, UK and USA), five additional countries whose ratifications were pending (France, Italy, Norway, Portugal and Spain) and two observer organizations, United Nations Food and Agriculture Organization (FAO) and the International Council for the Exploration of the Sea (ICES). ICNAF was responsible for management of the fisheries of the Northwest Atlantic outside the territorial seas of the coastal States, west of 42º W longitude, between 39º W and 78º 10'N latitude.

ICNAF's management schemes were innovative, and represented first-time multinational agreements on high-seas fishery regulations. ICNAF can lay claim to a number of firsts among international fisheries commissions: establishing control of the overall level of exploitation, attempting multispecies management, and - crucially for this study - adopting TAC regulations, and adopting national allocations of TACs.

On 1 January 1979, the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries came into effect, resulting from several conferences held in Ottawa in 1977 and 1978. This Convention provided for the establishment of the Northwest Atlantic Fisheries Organization (NAFO). Following a 1-year transition between the two organizations, ICNAF was officially dissolved effective 31 December 1979. NAFO initial Members consisted of Bulgaria, Canada, Cuba, Denmark (for the Faeroe Islands), the European Economic Community, German Democratic Republic, Iceland, Japan, Norway, Poland, Portugal, Romania and the USSR. The US maintained observer status until formally joining in 1995.

The activities of NAFO have been similar to those of ICNAF, but with a somewhat different structure. NAFO has additionally addressed new and different challenges, particularly the issues of non-Member country fishing, unilateral establishment of quota allocations by Contracting Parties, and the exceeding of quota allocations by Contracting Parties. The NAFO Scientific Council has distinguished itself particularly through its detailed and well documented evaluations of stock.

In addition it has maintained its high profile with sponsorship of annual Special Sessions, Symposia and Workshops which have focused on scientific topics relevant not only to the Northwest Atlantic, but to fisheries science in general. NAFO, as an intergovernmental conservation organization, has demonstrated that in an era of extended national fishing zones and diminished international zones, multilateral scientific cooperation and management of shared fishery resources can not only be accomplished, but is a necessity.

NAFO does not manage tuna populations, but its resource allocation scheme is applicable nonetheless.

In 1979 the first quotas were established for capelin and squid (Illex) with a minimum of 10% of the squid quota to be taken in Subarea 3. Canada was the only country to be allocated capelin (10,000 t). The allocation of fishing rights for squid among countries was as follows: Canada (86,500 t); Cuba (4,500 t); European Economic Community (5,000 t); Romania (1,000 t); and the USSR (10,000 t)[64] (source: NAFO/FC Doc. 99/3). The Executive Secretary also was authorized to take action as needed after receiving information that Contracting Parties had reached their respective catch quotas. Specifically, NAFO made a number of amendments to its Scheme of Joint International Enforcement and required the use of fish logs to record the amount of each species on board. NAFO also established a scientific observer scheme unfortunately its intent was primarily to improve the scientific knowledge and state of stocks in the Regulatory Area not monitor catch levels. A further hindrance to the scheme's effectiveness was that Contracting Parties were asked to participate on a voluntary basis and arrangements for observers were made bilaterally. Initial efforts also were made to regulate the actions of Non-Contracting Parties. For instance, the President of NAFO notified Mexico, Panama and Venezuela of the "difficulties created by their vessels regarding conservation of stocks in the Regulatory Area."

Along with countries who fished in the Regulatory Area in the previous year, the German Democratic Republic, Norway, Portugal and an Others Category were allocated fishing rights in 1980. Allocations were also granted through a reserve for two non-Members Poland to fish 3M cod and Spain to fish 3M and 3NO cod. In total TACs and allocations were established for eight stocks (3M cod, 3NO cod, 3M redfish, 3LN redfish, 3M American plaice, 3LNO American plaice, 3LNO yellowtail flounder, 3NO witch flounder and Illex Squid in Subareas 3 and 4). It was further recommended that there be no directed fishery for 3NO cod and that bycatch for this stock be restricted to 2,500 kg and 10% total weight on board of all species caught in Division 3NO. Even though allocations for both squid and capelin were deferred in 1980, mesh size regulations for squid in the NAFO Regulatory Area and codend covers to prevent damage were adopted. It also was agreed by Contracting Parties that any quota listed as squid may be increased by a transfer from any other quota listed for squid or by a transfer from any "coastal State" provided that the TAC for squid is not exceeded. It also was requested that transfers made to Contracting Parties conducting fisheries for squid within the Regulatory Area be reported to the Executive Secretary as promptly as possible. NAFO Members voiced concerns over fishing activities of Spain and how they were undermining conservation and enforcement efforts.

[64] (source for all quota and allocation data from 1979-1999 was NAFO/FC Doc. 99/3)

Bulgaria, Iceland, Japan and Poland were first given allocations as Members of NAFO in 1981. Again, Spain was afforded an allocation by virtue of a reserve on 3M and 3NO cod as well as squid in Subareas 3 and 4, but in order to address previous concerns from Contracting Parties this appears to be the first time that NAFO added language stating that these allocations were based "on an understanding that Spain will act in conformity with NAFO conservation and enforcement regulations, and will participate in the NAFO Scientific Observer Scheme." An additional requirement restricted future TAC increases on 3NO cod t "until such time as the Scientific Council reported that age 3+ annual mean biomass reached 200,000 t." A supplementary allocation of 465 t of 3M cod also was added to Norway's 835 t annual quota, with the stipulation that this would not result in a permanent increase in its annual quota. TACs and corresponding allocations were established for 3NO cod, 3LNO capelin and Subareas 3 and 4 squid of 26,000 t, 30,000 t and 150,000 t respectively. TACs for 3M Cod, American plaice and yellowtail flounder were increased while the TAC for witch flounder was reduced by 2,000 t from the previous year.

In 1982 the TAC for 3M cod was lowered to 12,405 t; 345 t less than the previous year. A restriction also was placed on future 3M cod TAC increases. It was stated that this restriction should remain in place "until the Scientific Council advises that the age 3+ mean biomass reached a level approximately equal to one-half the mean age 3+ equilibrium biomass associated with fishing at F_{max} and assuming long term average recruitment levels." The TAC for yellowtail flounder again was increased, the majority of which went to Canada with a minor portion to the European Economic Community. The reserve for 3NO cod was eliminated decreasing the overall TAC for this stock by 9,000 t.

In 1983, Cuba transferred 850 t of its redfish catch to Canada in Division 3M. In addition, the TAC for yellowtail was lowered from 23,000 t to 19,000 t. A moratorium also was placed on the harvesting of capelin.

In 1984, the TAC for 3NO cod was restored to 26,000 t the majority of this increase went to Spain now a Contracting Party. Canada also saw an increase in its quota while the USSR saw a decrease and Cuba's allocation was eliminated. The TAC for yellowtail flounder was further reduced by 2,000 t while the TAC for 3M cod was increased so that Spain could be allotted 560 t and 50 t could be allotted in the Others Category. There were no Special Reservations in 1984.

The TAC for 3NO cod was increased for all Contracting Parties previously afforded an allocation (i.e., Canada, the European Economic Community, Portugal, Spain and the USSR). A proposal for a moratorium in 1987 on 3L cod outside the Canadian EEZ also was introduced which was subsequently adopted in 1986. There also were decreases in TACs for 3LNO yellowtail flounder and 3LNO American plaice which primarily affected Canada which took the largest share of the TAC. NAFO, through Fisheries Commission Resolution 1/85, called upon all its Members to follow the reporting requirements of NAFO Rules and Regulations contained in its FC 82/IX/13 - Conservation and Enforcement Measures Part 1. C. and comply with the sampling requirements established by the Scientific Council.

In 1986 the TAC for 3LNO American plaice was restored to 55,000 t. Both Canada and the European Economic Community were granted former allocation levels of 1984.

The TAC for 3LNO American plaice was reduced in 1987, again primarily affecting Canada and to a much lesser extent the European Economic Community and a TAC of 10,000 t was set for capelin; allocations were granted to Canada (400 t), the European Economic Community (250 t), the Faroe Islands (250 t), Norway (800 t), Poland (3,000 t), Portugal (300 t) and the USSR (5,000 t). The Fisheries Commission also agreed that the squid TAC in Subareas 3 and 4 would remain 150,000 t, subject to adjustment where warranted by scientific advice.

Several major resolutions were adopted in 1988. The first of which was Resolution 1/88: Resolution of the Fisheries Commission of the Northwest Atlantic Fisheries Organization regarding reporting of provisional monthly catches by species and stock area, adopted by the Fisheries Commission on February 10, 1988. Contracting Parties were required to report within 30 days following the calendar month in which catches are made, provisional monthly catches by species and stock area. This further requires that each Contracting Party have established procedures to obtain catch reports from their vessels to ensure proper in-season management of the fishery resources. Second, Resolution 2/88 established a binding measure – a Joint Inspection Scheme for all Contracting Parties. Third,

Resolution 3/88 urged among other things, that Contracting Parties help to improve the Annual Scientific Program by continuing existing scientific surveys; providing complete and accurate statistical reports regarding catches, discards and directed fishing efforts; called upon Contracting Parties to improve and extend biological sampling of stocks in the Regulatory Area by specialized personnel, either unilaterally or bilaterally and requested that non-Members of NAFO whose nationals fish in the regulatory area provide NAFO with complete and accurate statistical reports and cooperate fully with the NAFO Scientific Program. Finally, Resolution 4/88 called on "Contracting Parties to avoid excessive or inappropriate use the objection procedure against the regulatory measures adopted by the Fisheries Commission." The TAC for 3NO cod was again increased along with the TAC for capelin while the TAC for American plaice was reduced. The directed fishery for 3L cod outside 200 miles was closed beginning January 1988 and would remain closed through 1993.

The following year, the TAC for 3NO cod was dramatically reduced from 44,000 t to 25,000 t. The American plaice and yellowtail flounder TACs also were reduced while the capelin TAC was nearly doubled. Changes also were made to NAFO's Conservation and Enforcement Measures regarding Incidental Catch Limits and a proposal was adopted to asses the effects of cod bycatches in the redfish and flatfish fisheries. In addition, a proposal was adopted to secure advice on areal and seasonal concentrations of juvenile American plaice and yellowtail flounder in Division 3LNO in the Regulatory Area. During that same year a resolution was adopted calling for NAFO contracting Parties to comply with the NAFO Management Framework in order to provide for conservation and maintain the traditional spirit of cooperation and mutual understanding as prescribed in the Law of the Sea Convention of 1982. In 1989 Denmark (in respect of the Faroe Islands and Greenland) became a Member of NAFO.

From 1988 – 1990 there was no TAC allotted for 3M cod when it was restored in 1990 Denmark (in respect of Faroe Islands and Greenland) had replaced Faroe Islands at the NAFO negotiation table and was awarded 2,900 t of 3M cod fish. The 3LNO cod TAC was lowered from 18,600 t to 13, 600 t. The 3M redfish quota which was doubled in 1990 to 50,000 t was cut to 43,000 t in 1992 while the 3LN redfish quota was reduced by nearly a third. 3M American plaice stayed constant at 2,000 t; the TAC for 3LNO American plaice was 25,800 t in 1992, lower than historic TACs; 3LNO yellowtail flounder TAC increased from 5,000 t to 7,000 t; 3NO witch flounder was 5,000 t annually over the three years; and the capelin and squid TACs remained constant at 30,000 t and 150,000 t respectively. Resolution 1/90 also was adopted which "Declares that all Members of the international community whose nationals carry out fishing activities in the NAFO Regulatory Area should ensure that those activities do not have an adverse impact on the stocks or NAFO's ability to ensure conservation; Resolves for all Contracting Parties' communications through diplomatic channels and non-Contracting Parties whose vessels fish in the NAFO Regulatory Area and for adoption of all necessary measures (e.g., harvest origin certificate, etc.) to prevent fishing contrary to NAFO conservation measures."

During this time, NAFO also enacted a number of new regulatory measures to improve monitoring and surveillance including, but not limited to, establishing: a Standing Committee on Fishing Activity of Non-Contracting Parties in the Regulatory Area (STACFAC); incidental catch limits to a maximum of 2,500 kg or 10% which ever is greater, for each species listed in Schedule 1 for which no quota has been allocated to the Contracting Party; Guidelines for the Coordination and Optimization of Inspection and Control in the Regulatory Area; new rules requiring marking of small boats carried on board fishing vessels and fixed gear; a new rule for marking of fishing vessels; new rules for documentation that each Contracting Party shall ensure that the fishing vessel over 10 m in length carry on board documents issued by competent authorities of the State in which it is registered and that vessels over 17 m in length which freeze or salt fish shall keep onboard up to date drawings or descriptions of their fish rooms; a NAFO Inspection Seal; minimum size limit for cod of 40 cm in Div. 3M and 3NO except for European Economic Community redfish fishery in 3LN and witch flounder fishery in 3NO; a Hail System for entry, exit and movement between NAFO divisions; mesh size restrictions; that Contracting Parties will ensure that all hail reports are transmitted by them will be numbered sequentially; and guidelines for aerial surveillance and new inspection questions under its inspection procedure. Russia objected to the latter three points and thus was exempt from compliance under the NAFO Objections Procedure. In 1992, NAFO enacted a series of proposals to combat illegal activities such as recommended actions by Contracting Parties to prevent infringements to measures by their vessels; production of logbooks and stowage plans; the use of STACTIC Form A for Annual Return of Inspections, Catch Report Discrepancies and/or Apparent Infringements; a Pilot Project for a NAFO Observer Scheme and Minimum Mesh and Fish Sizes in NAFO Regulatory Area.

In 1993 with the break up the USSR, separate allocations were granted for Estonia, Latvia, Lithuania and Russia, although the TACs were not increased. In fact, TACs were reduced for three stocks (i.e., 3NO cod, 3M redfish and 3LNO American plaice). Resolution 1/93 also was adopted by the General Council of NAFO for non-Contracting Parties fishing in the NAFO Regulatory Area which introduced the landing declaration scheme and means of its implementation. In addition, the hail system became operational. Further management measures were enacted to protect 3NO cod including 50% observer coverage and 100% inspection. A mesh size of 40mm and sorting grids were adopted for 3M and 3LNO shrimp and a moratorium was implemented for shrimp in 3LNO. In addition, a new Inspection Procedure was adopted which required 30 minute delay for retrieving nets for inspection purposes. To compliment previously adopted minimum fish size restrictions a new rule was adopted which required the return of undersized fish to the sea. The Russian Federation objected to the agreed upon quota allocations each year from 1993-1998, objecting to block allocations on several stocks for Latvia, Lithuania, Estonia and the Russian Federation in these two years.

In 1994, the TACs for all but two stocks were decreased (i.e., 3LNO yellowtail flounder which increased from 5,000 t to 7,000 t and squid in Subareas 3 and 4 which remained at 150,000 t). In addition, based on the poor state of 3NO cod, 3LNO and 3M American plaice and 3LNO yellowtail flounder moratoriums were implemented for these four stocks in 1994. The Fisheries Commission adopted further conservation measures for shrimp requiring maximum spacing between bars of 22 mm and no directed fishing for Shrimp in 3LNO in 1995. NAFO also extended the Pilot Observer Scheme until December 1995. NAFO's General Council also adopted Resolution 1/94 pertaining to the acceptance of the UN "Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas."

In 1995, moratoriums remained in place for 3NO cod, 3LNO and 3M American plaice, 3LNO yellowtail flounder, 3LN shrimp and were also enacted on 3NO witch flounder 3NO capelin. This was the first year of management for Greenland halibut in Subareas 2 and 3, a minimum size was adopted and a TAC was set at 27,000 t and divided among Canada, the European Union, Japan, Russia and Others. Korea also became a Contracting Party. A TAC of 11,000 t was implemented for 3M cod, 26,000 t for 3M redfish, 14,000 t for 3LN redfish and 150,000 for squid in Subareas 2 and 3. To improve quality of collected data proposals were adopted 1) pertaining to transmission of information from inspections; 2) Procedures for conducting inspections; 3) reporting of catch on board fishing vessels entering and exiting the Regulatory Area; 4) Port inspections; 5) Follow-up on apparent infringements; 6) an expanded Pilot Project for Observers and Satellite Tracking; 6) Effort plans and catch reporting; 7) infringements; and 8) management measures were proposed for shrimp fisheries which Iceland and Russia objected to. Latvia also objected to the agreed upon TACs for 1996. In addition, Resolution 1/95 was adopted by the Fisheries Commission which divided Greenland halibut management into two parts 2+3K (Canadian 200 mile zone) and 3LMNO.

In 1996 the existing moratoriums continued, a moratorium on 2J3KL cod in 3L was enacted and the TAC was reduced for 3LN redfish from 14,000 t to 11,000 t. In addition due to the redefined management areas for NAFO and Canada, a 20,000 t quota was now established for Greenland halibut in the NAFO regulatory Area Div. 3LMNO. Canada would be responsible for setting its own quota for Greenland halibut caught within its EEZ, NAFO Convention Area 2 +3 K. It also was noted that of the Others allocation (1,330 t) no more than 40% (532 t) could be fished before 1 May 1986 and no more than 80% (1,064 t) could be fished before 1 October 1996. A number of proposals were adopted by NAFO in 1996 these included, inter alia, including the phrase "target species" in hail reports; recommendations for observer duties to collect data on discards; implementation of an experimental redfish fishery using 90 mm mesh in 1997. Latvia objected to the agreed upon quota allocations among countries from 1997-1999 due to the "block quota" for 3M cod, 3M redfish and Subareas 3 and 4 squid and the "others" quota for Greenland halibut.

The only change in allocations for 1997 was a reduction in the 3M cod TAC from 11,000 t to 6,000 t. Existing moratoriums remained in effect and a new moratorium was enacted for 3L witch flounder. The United States became a Member of NAFO and received a 2,000 t allocation of squid in Subareas 3 and 4. France (in respect of St. Pierre and Miquelon) and Korea also joined NAFO each receiving 90 t of 3M redfish, along with the US. This did not represent an increase in the redfish quota but rather a reallocation of Bulgaria's previous share. NAFO adopted an Inspector's/Trainee's Document of

Identity and measures to manage shrimp in 3M which Iceland objected to. A resolution was also adopted regarding the non-participation of Bulgaria and Romania in NAFO.

In 1998 quotas for 3M cod and 3M redfish were reduced and due to an apparent increase in abundance, the moratorium was lifted and a TAC of 4,000 t was established for yellowtail flounder. The majority of this TAC went to Canada with small allocations to the EC and Others. Again there were objections from Latvia and Russia on the agreed upon quotas and footnote of Quota table as well as Lithuania who objected to the "block quota" of 3M redfish and Subareas 3 and 4 squid an to the footnote of the Quota Table and "Others" re: fishing for Greenland halibut. Specifically, that each Contracting Party shall notify the Executive Secretary bi-weekly of catches taken by its vessels from the 3M redfish stock. The Executive Secretary shall without delay notify all Contracting Parties of the date on which, for this stock, accumulated reported catch taken by vessels of the Contracting Parties is estimated to equal 100% of the TAC for that stock. At that date each Contracting Party, to which quota has been allocated or which vessels are engaged in fishing under the "others" category shall prohibit fishing by its vessels for that stock. Some additional measures adopted in 1998 included no transshipment of fish from Non-Contracting Party vessels; and Standardized Formats for Electronic Transmissions of NAFO Hail and Satellite Tracking Reports.

In 1999 there was an decrease in 3M redfish and Subareas 2 and 3 squid TACs and an increase in Greenland halibut in 3LMNO and yellowtail flounder in 3LNO, but incidental catch limits must be adhered to for this species (see Conservation and Enforcement Measures PART 1 – Management - Section A.5)

In 2000 the 3M redfish quota was dramatically reduced to 5,000 t and the 3LNO yellowtail flounder TAC increased to 10,000 t, the Greenland halibut TAC also was increased to 25,935 and the squid catch in Division 3 and 4 was reduced by about half. A TAC was set for the first time for 3L shrimp with 5,000 being allocated to Canada and 67 t allocated to all other Contracting Parties. A block quota was not instituted for the Russian Federation.

In 2001 not much changed in terms of allocations except that the 3LNO yellowtail flounder quota again was increased to 13,000 t and there was a slight upward adjustment in the 3LMNO Greenland halibut quota.

In 2002-2003 the TACs for 3LNO yellowtail flounder, 3LMNO Greenland halibut and 3L Shrimp were raised. At the 2002 annual meeting, the NAFO Scientific Council recommended that the total catches of Div. 3LNO yellowtail flounder should not exceed 14,500 t in 2003 and 2004. The Fisheries Commission accepted this recommendation and set the 2003 TAC for Div. 3LNO yellowtail flounder at 14,500 t, a 1,500 t increase from the 13,000 t TAC in effect for this stock in both 2001 and 2002. In response, the United States tabled a proposal for a (first time) national allocation of this stock. This proposal was based on the relative good health of the stock; U.S. history of fishing for this stock in the NAFO Regulatory Area; and on the principle that the agreed increase in TAC for this stock should be shared among all those with a history in the fishery. Although the TAC increase was adopted, the U.S. proposal for a share was not supported. A further restriction was imposed on the Others Allocation for 3LMNO Greenland halibut whereby no more than 60% (1,242 t) may be fished before 1 May 2003. For the 2003 fishing year a TAC also was established for NAFO subarea 2 and Divisions 1F and 3K redfish. Denmark (Faroe Islands & Greenland), European Union, Iceland, Norway, Poland and Russia all received 25,000 t and were required to notify the Executive Secretary bi-weekly of catches taken by their vessels. The Executive Secretary in turn will notify all Contracting Parties the dates on which accumulated reported catch taken by vessels of Contracting Parties estimated equal to 50% and then 100% of the allocation. It also was agreed that the allocation would be deducted from the quotas allocated to these Contracting Parties in the NEAFC Convention Area. Canada, Cuba, Estonia, France (St Pierre et Miquelon), Japan, Korea, Latvia, Lithuania, Ukraine and the US were allotted 7,500 t each and must comply with the same reporting requirement.

In 2004-2006 all previous moratoriums remained in effect. The Greenland halibut TAC was reduced by more than half and the 3L shrimp TAC was doubled to 13,000 t. An effort allocation scheme was put in place for 3M shrimp. Canada has 16 days, Cuba (1), Denmark (22); Estonia (8); European Union (13); France (in respect of St. Pierre et Miquelon) (1); Japan, Korea, Poland, Ukraine and US each (1); Latvia (4); Lithuania (7); and Norway (32).

A Rebuilding Plan also was adopted for 3LNMNO Greenland halibut but the TAC consistently has been exceeded and the majority of the catch consists of juveniles. The catch increased since 1998 and by 2001 was estimated to be 38,000 tonnes, the highest since 1994. The 2004 catch was 25,500 t, exceeding the 2004 rebuilding plan TAC by 27 percent. Current TAC allocation can be found in the 2006 quota table below. For 3O redfish, a TAC of 16,000 t was first implemented by Canada within its 200-mile limit in 1974. Canada maintained the TAC until September of 2004 when NAFO took over the 3O Redfish TAC regulation and allocation. NAFO implemented a TAC level of 20,000 t for 2005-2007. This TAC applies to the entire division and is double the 2004 Canadian TAC of 10 000 t.

Under Article 3 of the NAFO Conservation and Enforcement Measures (CEM) (2006), Quotas:

1. Each Contracting Party shall limit its catches of the stocks listed in the table below so that neither the quota allocated to a Contracting Party nor the quota allocated to "Others" is exceeded.
2. Each Contracting Party to which a quota has been allocated shall close its fishery in the Regulatory Area for the stocks listed in the table below on the date on which the accumulated reported catch, the estimated unreported catch, the estimated quantity to be taken before the closure of the fishery and the likely by-catches during the period to which the quota applies, equal 100 percent of the quota allocated to that Contracting Party. Such Contracting Party shall promptly notify the Executive Secretary of the date on which that Party will close its fishery for the stocks concerned. The Executive Secretary shall promptly inform all other Contracting Parties of such notification.
3. Each Contracting Party which has not been allocated a quota of a particular stock listed in the table below shall be allowed to fish on the quota allocated to “Others”. Those Contracting Parties shall notify the Executive Secretary, at least 48 hours in advance of each entry after a minimum of 48 hours of absence from the Regulatory Area, of their vessels intended to fish on such a quota. This notification shall, if possible, be accompanied with an estimate of the projected catch.
4. The Executive Secretary shall notify without delay and by the most rapid electronic means available all Contracting Parties of the date on which the accumulated reported catch, the estimated unreported catch, the estimated quantity to be taken before the closure of the fishery and the likely by-catches during the period to which the quota applies, equal 100 percent of the quota allocated to "Others" in the table below for a particular stock. A vessel is not allowed to start a fishery after the date a notification of closure has been issued by the Secretariat.
5. Each Contracting Party which has not been allocated a quota for a particular stock shall, within 7 days of the date of issue of such electronic notification by the Executive Secretary, close its fishery in the Regulatory Area for that stock, except for by-catches in directed fisheries for other stocks.

Article 8 of the NAFO CEM, Quota Adjustments:

1. When information satisfactory to the Executive Secretary indicates that there are reasonable grounds for believing that a quota of a Contracting Party has been taken, he shall within one working day inform that Contracting Party. Should that Contracting Party fail within 15 days either to cease fishing or to demonstrate that the quota has not been taken, the Executive Secretary shall so report without delay to the Fisheries Commission.
2. When the Fisheries Commission finds that vessels of a Contracting Party have taken more than the quota allocated to that Contracting Party, the Commission may adjust the corresponding quota for that Contracting Party in a succeeding quota period.
3. When the Fisheries Commission finds that a Contracting Party, contrary to the provisions of Article 3, has fished on a quota allocated to “Others” without reporting its intention to fish on that quota, failed to report its catches taken under such a quota, or continued a directed fishery under such quota after this fishery had been closed, the Commission may propose measures to compensate for damage caused to the stock. Such measures may include adjustments to quotas or the establishment of new quotas for that Contracting Party as appropriate.
4. Quota adjustments shall be made during the determination by the Fisheries Commission of relevant quotas for the following quota period, and shall not result in an increase in any other quota for the Contracting Party to which the quota adjustment applies. Any quota adjustment shall not result in an increase in the relevant quota for any other Contracting Party, unless the Commission determines that the increase will not cause further harm to the stock.

Criteria for the Allocation of Fishing Rights

Section 213(a) of the Northwest Atlantic Fisheries Convention Act of 1995 (16 U.S.C. 5601 et seq.) requires that the Secretary of Commerce, acting through the Secretary of State, shall promptly seek to establish a new practice for allocating quotas under the Convention that–

(1) is predictable and transparent;

(2) provides fishing opportunities for all Members of the Organization; and

(3) is consistent with the Straddling Stocks Agreement.

At the time, NAFO managed 11 principal groundfish and flounder stocks through annual quotas, allocations by country and other technical measures. At the 1997 NAFO Annual Meeting, the Fisheries Commission formed the Working Group on the Allocation of Fishing Rights to Contracting Parties of NAFO. The Terms of Reference for this working group provided guidance for the development of appropriate options for allocation. These options were to take into account such considerations as: current NAFO allocations practices, the needs of Contracting Parties, relevant provisions of the NAFO Convention and other applicable international agreements, as well as the need for NAFO to function effectively. The Working Group was further directed that allocation options should include terms that were explicit and predictable for allocation to Contracting Parties from: current fisheries with NAFO TACs, fisheries not previously subject to NAFO TACs, new fisheries, closed fisheries being reopened, and fisheries for which fishing rights were or would be allocated in terms other than quotas (e.g., effort limits).

Although the Allocation Working Group met intersessionally during 1998-2000, progress was slow and marked by a lack of consensus on key issues. Initial discussions within the working group focused on broad issues relating to access to fishing opportunities. While attempts by the group to define "real interest" were never fully resolved, the Organization was able to adopt a resolution to guide the expectations of future new Members to the Organization as a result of these discussions. In addition, the Working Group began looking at qualifying criteria for allocations, as well as allocation criteria. Possible scenarios for re-utilization of allocated quota and re-allocation of fishing opportunities were also examined.

A number of Contracting Parties submitted working papers during this period attempting to give practical application to the broader discussions of principle. Many of these proposals contained allocation templates for the specific types of fisheries identified in the Working Group Terms of Reference. However, when it became clear that broad discussions on a comprehensive strategy for allocations within the Organization were not resulting in consensus, it was agreed that allocation issues should be addressed in a stepped approach, based on fishery type, with first consideration given to fisheries not previously subject to NAFO TACs and fisheries for which fishing rights were or would be allocated in terms other than quotas (e.g., effort limits). The necessity of this focused approach was underlined by on-going questions relating to allocation in new and developing fisheries (e.g., Div. 3M and 3L shrimp).

During its 21st Annual meeting NAFO adopted a resolution to guide the expectations of future new Members with regard to fishing opportunities within the NAFO regulatory area. In the resolution NAFO stated the following:

1. NAFO is an open organization. Non-Members may join the Organization by depositing an instrument of accession in accordance with Article XXII of the Convention. In accordance with Article IV of the Convention, all Contracting Parties are Members of the General Council.

2. Should any new Member of NAFO obtain Membership in the Fisheries Commission, in accordance with Article XIII (1) of the Convention, such new Members should be aware that presently and for the foreseeable future, stocks managed by NAFO are fully allocated, and fishing opportunities for new Members are likely to be limited, for instance, to new fisheries (stocks not currently allocated by TAC/quota or effort control), and the "Others" category under the NAFO Quota Allocation Table.

During its meeting in March 2000, the Working Group focused on continued development of a broad strategy for allocation of future fishing opportunities for stocks not currently allocated. The Working Group attempted to create non-exhaustive, non-prioritized "shopping lists" relating to both qualifying criteria and allocation criteria with regard to such opportunities. In addition, the Working Group examined possible options for fishing opportunities on the margins of stocks currently managed under TAC. Much of this discussion related to the possible creation of an "others" quota. However there was

no agreement regarding possible sources for such a quota, nor was it determined who should have access to the fish contained therein.

Due to the limited substantive progress of the working group and the large number of intersessional meetings on the 2001 schedule, it was agreed at the 2000 NAFO Annual Meeting that work should be suspended until the 2001 annual meeting. The 2001 Annual Meeting was subsequently cancelled. At the 2002 Annual Meeting, the Fisheries Commission agreed that the Working Group should meet during the 2003 intersessional period.

At the March 26-27, 2003, meeting of the Working Group on the Allocation of Fishing Rights, Discussion continued regarding a predictable, transparent process that recognizes the conservation and management contributions of coastal States to straddling fish stocks, historical fishing patterns, is fair and equitable, provides fishing opportunities to all Members, in principle, and enhances the conservation and management of NAFO-managed stocks. In the interests of taking steps in this direction, the United States tabled a white paper for discussion at the Working Group meeting that proposed development and adoption of allocation criteria similar to those already adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT). The white paper further attached a list of potential criteria based on the ICCAT list. The Allocation Working Group did not follow the U.S. proposal, instead developing a list of allocation criteria applicable only to stocks had never been allocated by NAFO.

To a large degree the inability of the Allocation Working Group to agree on a comprehensive strategy for allocation of fishing opportunities in NAFO can be traced to a basic difference in perspective between the older and newer Members of the Organization. Due to the stressed status of many of the fisheries resources under the purview of NAFO, a number of the valuable stocks once available to the NAFO membership are now under moratoria or have only very limited TACs. NAFO Parties that once enjoyed national quotas for these stocks are of the opinion that, should any of these resources recover, those Parties with historical fisheries within the Organization should retain fishing rights under the percentage shares in place when the stocks were healthy. This fishing history argument is supported by the early allocation activities of NAFO, as well as by the practices of many other RFMOs. Along with coastal State status, fishing history has in the past been the primary vehicle for those Members wishing to pursue quotas in any given fishery (new or otherwise). Provisions identifying these considerations in allocation decisions can be found in Article XI of the NAFO Convention, and are also present in the Convention texts and in practice in many other RFMOs. No other allocation guidance is present within the NAFO Convention.

It should be noted that, despite past practice within NAFO (and some other RFMOs) of allocation based solely on coastal State status and fishing history, circumstances both within and outside of the Organization have changed considerably in recent years. Within the Organization, fishing moratoria are in place for a number of NAFO's most valuable and important stocks. The impact of this reduction in historic fishing opportunities is complicated by calls for fishing opportunities from new NAFO Members. This difficult situation has led to somewhat of a departure from the allocation template of the past, and NAFO has shown some flexibility and creativity in dealing its current circumstances.

In recent years, new stocks have come under NAFO management and new fishing opportunities have become available to Contracting Parties. NAFO's attempts to deal with the allocation questions associated with these opportunities have departed considerably from past practices. In attempting to address not only the concerns of coastal States and Members with a fishing history, but of all of its membership, NAFO has embarked on a new path. These actions to some degree reflect a broad change in international perspective relating to the rights of all RFMO Members.

2006 Quota Tables

Total allowable catches (TACs) and quotas (mt) for 2006 of particular stocks in Sub-Areas 1-4 of the NAFO Convention Area. The values listed include quantities to be taken both inside and outside the 200-mile fishing zone, where applicable.

Species	*Cod*			*Redfish*				*American Plaice*		*Yellowtail*	*Witch*	
Division/Contracting Party	*3L*	*3M*	*3NO*	*3LN*	*3M*	*3O*	*Sub-Area 2 and Div. 1F+3K*	*3LNO*	*3M*	*3LNO*	*3L*	*3NO*
Canada		0	0	0	500	6000	627[2,4]	0	0	14624[5]		0
Cuba		0	-	0	1750		627[2,4]	-	-	-		-
Denmark (Faroe Islands and Greenland)		0	-	-	69		15675[2,3]	-	-	-		-
European Union		0[11]	0[11]	0[11]	7813[12]	7000	15675[2,3] / 4076[2,15]	0	0[11]	-		0[11]
France (St. Pierre and Miquelon)		-	-	-	69		627[2,4]	-	-	300[5]		-
Iceland		-	-	-	-		15675[2,3]	-	-	-		-
Japan		-	-	-	400	150	627[2,4]	-	-	-		-
Korea		-	-	-	69	100	627[2,4]	-	-	-		-
Norway		0	-	-	-		15675[2,3]	-	-	-		-
Russia		0	0	0	9137	6500	15675[2,3]	-	0	-		0
Ukraine						150	627[2,4]					
USA		-	-	-	69		627[2,4]	-	-	-		-
Others		0	0	0	124	100	-	0	0	76[5]		0
Total Allowable Catch	*	*	*[16]	*[16]	**5000**[8,16]	**20000**[16]	**20378**[10,17]	*[16]	*	**15000**[9]	*[16]	*

Species	*White hake*	*Capelin*	*Skates*	*Greenland Halibut*	*Squid (Illex)*[1]	*Shrimp*	
Division/Contracting Party	*3NO*	*3NO*	*3LNO*	*3LMNO*	*Sub-Areas 3+4*	*3L*	*3NO*
Canada	2500	0	2250	2056	N.S.[6]	18325	
Cuba		0		-	510	245	
Denmark (Faroe Islands and Greenland)		-		238	-	245	
European Union	5000	0[11]	8500	8038[18]	N.S.[6] / 611[13]	1225[14]	
France (St. Pierre and Miquelon)		-		224	453	245	
Iceland		-		-	-	245	
Japan		0		1405	510	245	
Korea		-		-	153	245	
Norway		0		-	-	245	
Russia	500	0	2250	1748	749	245	
Ukraine				-		245	
USA		-		-	453	245	
Others	500	-	500	0[7]	794	0	
Total Allowable Catch	8500[16]	*[16]	13500[16]	13709	34000	22000	*

* Ban on fishing in force – The provisions of Article 9, paragraph 3 shall apply.

1. Any quota listed for squid may be increased by a transfer from any "coastal State" as defined in Article 1, paragraph 3 of the NAFO Convention, provided that the TAC for squid is not exceeded. Transfers made to Contracting Parties conducting fisheries for squid in the Regulatory Area shall be reported to the Executive Secretary, and the report shall be made as promptly as possible.
2. The Contracting Parties shall notify the Executive Secretary every second week of catches taken by its vessels from this allocation until accumulated reported catch reaches 50%, after which time weekly notification shall apply. The Executive Secretary shall notify without delay all Contracting Parties the dates on which accumulated reported catch taken by vessels of Contracting Parties estimated equal to 50% and then 100% of that allocation.
3. Quota to be shared by vessels from Denmark (Greenland and Faroe Islands), European Union, Iceland, Norway and Russia. Catches in the NAFO Convention Area shall be deducted from the quotas allocated in the NEAFC Convention Area.
4. Quota to be shared by vessels from Canada, Cuba, France (St. Pierre et Miquelon), Japan, Korea, Ukraine and USA.
5. Contracting Parties shall inform the Executive Secretary before 1 December 2005 of the measures to be taken to ensure that total catches do not exceed the levels indicated.
6. The allocation to these Contracting Parties are as yet undetermined, although their sum shall not exceed the difference between the total of allocations to other Contracting Parties and the TAC (= 29.458 tons).
7. In 2005, the previous 935 t "Others" quota was assigned to three Contracting Parties. When the TAC exceeds 30,000 t the next 1,300 t beyond 30,000 will be allocated to an Others quota which can be accessed by those who do not hold Greenland halibut allocation. In deciding the relevant contributions of Contracting Parties to the 1300 t Others quota, the Fisheries Commission will take into account the fact that some Contracting Parties received a benefit from the 935 t quota which was reassigned in 2005.

8. Each Contracting Party shall notify the Executive Secretary every second week of catches taken by its vessels from this stock until accumulated reported catch reaches 50%, after which time weekly notification shall apply. Not more than 2500 tons may be fished before July 1, 2006. The Executive Secretary shall notify without delay all Contracting Parties of the date on which, for this stock, accumulated reported catch taken by vessels of the Contracting Parties is estimated to equal 50% and then 100% of the TAC.
9. The provisions of Article 9, paragraph 3 of the Conservation and Enforcement Measures shall apply.
10. In the case of the NEAFC decision which modifies the level of TAC for this stock in 2006 as compared to 2005, these figures shall be accordingly adjusted by NAFO and formalized through a mail vote.
11. Including fishing entitlements of Estonia, Latvia, and Lithuania following their accession to the European Union and in accordance with sharing arrangements of the former USSR quota adopted by the Fisheries Commission at its Annual Meeting in 2003 (FC Working Paper 03/7).
12. Including allocations of 1571 tonnes each for Estonia, Latvia and Lithuania out of a sharing of 20,000 tonnes, following their accession to the European Union.
13. Allocations of 128 tonnes each for Estonia, Latvia and Lithuania as well as 227 tonnes for Poland out of a TAC of 34,000 tonnes, following their accession to the European Union.
14. Including allocations of 245 tonnes each for Estonia, Latvia, Lithuania and Poland out of a TAC of 22000 tonnes, following their accession to the European Union
15. Allocation of 3637 tonnes for Lithuania and 439 tonnes to Latvia following their accession to the European Union.
16. Applicable to 2006 and 2007.
17. The quota shares in footnotes 4 and 15 can only be fished in the NAFO Regulatory Area. If an increase in the overall TAC as defined in footnote 10 leads to an increase in these shares, the first 500 tonnes of that increase shall be added to the quota share referred to in footnote 4.
18. Including an allocation of 450 tonnes for Estonia, Latvia, and Lithuania following their accession to the European Union.

Effort Allocation Scheme for Shrimp Fishery in the NAFO Regulatory Area (NRA) Div. 3M, 2006
This quota for shrimp in the NRA is partially enforced by effort allocations.

CONTRACTING PARTY	NUMBER OF FISHING DAYS	NUMBER OF VESSELS
Canada	456	16
Cuba	100	1
Denmark		
-Faroe Islands	1606	8
-Greenland	515	14
European Union	3293[1]	33[1]
France (in respect of St Pierre and Miquelon)	100	1
Iceland	N/A	N/A
Japan	100	1
Korea	100	1
Norway	1985	32
Russia	2100	N/A
Ukraine	100	1
USA	100	1

[1]Including fishing entitlements transferred from Poland (100 fishing days with one vessel), Estonia (1667 fishing days with 8 vessels), Latvia (490 fishing days with 4 vessels) and Lithuania (579 fishing days with 7 vessels) following their acession to the European Union.

Rebuilding Plan for 3LMNO Greenland Halibut
In addition, the Greenland halibut is currently undergoing rebuilding, and has a schedule of TAC reductions for the years 2004-2007.

Species	**Greenland halibut**	**Greenland halibut**	**Greenland halibut**	**Greenland halibut**
Division/ Contracting Party	**3LMNO 2004**	**3LMNO 2005**	**3LMNO 2006**	**3LMNO 2007**
Canada	2223	2112	2056	1778
Cuba	-	-	-	-
Denmark (Faroe Islands and Greenland)	-	244	238	206
European Union	8203	8254[3]	8038[4]	6951[5]
France (St Pierre and Miquelon)	-	230	224	194
Iceland	-	-	-	-
Japan	1519	1443	1405	1215
Korea	-	-	-	-
Norway	-	-	-	-
Russia	1890	1796	1748	1512
Ukraine	-	-	-	-
United States of America	-	-	-	-
Others	985[1]	0[2]	0[2]	0[2]
TOTAL ALLOWABLE CATCH	**14820**	**14079**	**13709**	**11856**

[1]Of which no more than 60% may be fished before 1 May in each year.
[2]In 2005, the previous 935 t "Others" quota was assigned to three Contracting Parties. When the TAC exceeds 30,000t the next 1,300 t beyond 30,000 will be allocated to an Others quota which can be accessed by those who do not hold Greenland halibut allocation. In deciding the relevant contributions of Contracting Parties to the 1300 t Others quota, the Fisheries Commission will take into account the fact that some Contracting Parties received a benefit from the 935 t quota which was reassigned in 2005.
[3]Including an allocation of 461 tonnes for Estonia, Latvia and Lithuania following their accession to the European Union.
[4]Including an allocation of 450 tonnes for Estonia, Latvia and Lithuania following their accession to the European Union.
[5]Including an allocation of 389 tonnes for Estonia, Latvia and Lithuania following their accession to the European Union.