

FISHERIES

Leadership & Sustainability

FORUM

ALLOCATION

ACROSS THE REGIONAL FISHERY MANAGEMENT COUNCILS

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PREFACE

The following report is an overview of allocation issues, decisions, and challenges across the eight regional fishery management councils. Allocation is broadly defined in the context of this report to include council actions which affect a group of stakeholders' ability or privilege to harvest fishery resources in federal waters. This definition includes allocation issues that are framed as such, as well as council decisions that are not intended as allocation decisions but have the effect of indirectly allocating catch to a group of stakeholders defined by location, gear type, or some other shared characteristic. Each of the following regional profiles highlights experiences with allocation as well as qualities of the allocation decision-making process that managers and stakeholders have identified as important to the region.

The Fisheries Forum recognizes that allocation is an ongoing discussion at all eight of the regional councils. Each profile represents a snapshot in time. This report is not intended to analyze, judge or compare councils' approaches to allocation discussions and decisions. This report is also not intended to be a comprehensive overview of all allocation issues in each region. It is meant as a reference for fishery managers and a foundation for discussion among participants at the Stanford 2010 Forum, September 19-22, 2010. This document is a working draft until September 30, 2010.

The following terms, which appear throughout the report, are defined here for consistency across regions.

Allocation: A council action that assigns harvest privileges to a user group defined by shared characteristics including but not limited to type of participation (recreational, commercial, subsistence, tribal), gear type, location, or other factors. An allocation can also be made for a specific purpose (i.e., research, adaptive management, conservation).

Direct allocation: Allocation, as defined above, if used to distinguish from an indirect allocation

Indirect allocation: A council action that is not framed as a deliberate allocation decision but may affect the ability of a group of stakeholders, defined by location, gear type, target fishery or some other shared characteristic, to access and harvest fishery resources in federal waters. Indirect allocations may be intended or acknowledged to have allocative consequences at the outset, or these consequences may have become apparent in hindsight.

Formal allocation: An allocation decision included in a fishery management plan, amendment or framework action where applicable

Informal allocation: An allocation decision that is intended to be flexible and/or temporary

ACRONYMS

AM	Accountability Measures
AMP	Adaptive Management Program
ABC	Allowable Biological Catch
AFA	American Fisheries Act
ACE	Annual Catch Entitlement
ACL	Annual Catch Limit
AP	Advisory Panel
ASMFC	Atlantic States Marine Fisheries Commission
BSAI	Bering Strait/Aleutian Islands
CFMC	Caribbean Fishery Management Council
CPS	Coastal Pelagic Species
CQE	Community Quota Entity
DAS	Days At Sea
EFH	Essential Fish Habitat
EEZ	Exclusive Economic Zone
FMP	Fishery Management Plan
FMU	Fishery Management Unit
GAC	Groundfish Allocation Committee
GHL	Guideline Harvest Level
GOA	Gulf of Alaska
GOM	Gulf of Maine
GMFMC	Gulf of Mexico Fishery Management Council
HMS	Highly Migratory Species
IFQ	Individual Fishing Quota
IPQ	Individual Processor Quota
ITQ	Individual Transferable Quota
IPHC	International Pacific Halibut Commission
LLP	License Limitation Program
LAPP	Limited Access Privilege Program
MSA	Magnuson-Stevens Act
MSRA	Magnuson-Stevens Fishery Conservation and Management Act (reauthorized in 2006)
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MAFMC	Mid-Atlantic Fishery Management Council
NMFS	National Marine Fisheries Service
NEFMC	New England Fishery Management Council
NPFMC	North Pacific Fishery Management Council
PFMC	Pacific Fishery Management Council
PSMFC	Pacific States Marine Fisheries Commission
QS	Quota Share
SSC	Scientific and Statistical Committee
SEP	Socioeconomic Panel
SAFMC	South Atlantic Fishery Management Council

SBRM	Standard Bycatch Reporting Methodology
TAC	Total Allowable Catch
TAL	Total Allowable Landings
USVI	United States Virgin Islands
WPRFMC	Western Pacific Regional Fishery Management Council

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EXECUTIVE SUMMARY

Introduction

Allocation is a cross-cutting challenge that has risen to priority status with the rapidly approaching deadlines for the implementation of annual catch limits (ACLs) and accountability measures (AMs). Allocation discussions and decisions are unique to each fishery and are shaped by innumerable natural, social and economic factors. Despite these differences, all allocation decisions address the fundamental question of how to distribute a limited renewable resource among user groups. Allocation decisions introduce new challenges as well as opportunities. By identifying similarities and differences between the regional councils' experiences with allocation, managers can engage in discussions about the underlying goals, philosophies and priorities that shape management of the fisheries in their own regions. This introduction extracts the themes that connect the eight regions, and the following regional summaries explore these themes in greater detail.

Allocation processes and methods

The regulatory requirements to set ACLs and AMs prompted all eight councils to engage in new allocation discussions or revisit ongoing ones. In the past, councils and stakeholders initiated allocation discussions as part of an effort to control capacity, limit total mortality, account for interactions between fisheries, and manage interjurisdictional fisheries. While these requirements continue to motivate allocation discussions, ACLs and AMs imbue allocation decisions with greater urgency and reinforce these decisions with consequences.

Councils have allocated catch between the recreational and commercial sectors, between target and non-target fisheries, by gear type, region, fishing location, and season, and for conservation and research. Most allocations are formal decisions developed as fishery management plan amendments or framework adjustments, although some "informal" allocations for bycatch set-asides or research are intended to be flexible and/or temporary. A small number of allocations occur outside the council process, including MSA-mandated allocations for community development quotas in the North Pacific, and federal requirements to provide access for Native American tribes.

Across councils and fisheries, there are wide variations in councils' processes for setting goals and principles for making allocation decisions. The Gulf of Mexico council engaged in a council-wide allocation discussion, by convening an ad hoc allocation committee and adopting a council allocation policy. The Pacific council took a long-term view with its groundfish fishery by developing a strategic plan and a set of principles for allocating catch between users. Other councils have taken a decision-by-decision approach, as the New England council did when it adopted sector management for its groundfish fishery. Some councils, like the Pacific, set allocation goals at the multiple levels simultaneously. Other councils have articulated allocation goals during the decisionmaking process or even identified unintended consequences in retrospect. Usually these goals are very broad, but in some cases very specific.

Across regions as well as within councils, managers and stakeholders have different views about how allocation decisions should be made. These views of allocation may be articulated in council discussions, manifest in council decision, or expressed as personal opinion. Nearly every

council looks to past catch or landings history as the foundation for an equitable allocation. Some managers also support a forward-looking process in which councils could use allocation as a tool to achieve specific long-term goals for a fishery. Managers and stakeholders alike have strong opinions about the longevity of user group allocations. Some feel that an allocation is a permanent decision; others propose that allocation be flexible and responsive to trends. Allocations are most often adjusted through council processes, but councils are also exploring market mechanisms to allow transferability between sectors. Embedded in the concept of transferability is yet another question of whether catch should be freely transferable between sectors, or whether councils should set constraints to preserve stakeholder diversity.

Allocation Challenges

Under the new MSRA requirements, bycatch plays a prominent role in allocation decisions. Hard allocations of bycatch species can be the currency that “funds” a fishery to operate. While hard bycatch allocations can constrain a fishery from achieving optimum yield, they can also incentivize selectivity. The New England and Pacific councils share the challenge of managing multispecies groundfish fisheries with healthy and overfished stocks. Many councils are finding that bycatch allocations create tradeoffs tied to the scale of management. Individual or cooperative bycatch allocations, allocations by region or by gear type can ensure that stakeholders have access to a resource, but small allocations can be constraining. Councils may choose to use fishery or sector-wide bycatch allocations to pool risk across participants, but may inadvertently create a race for bycatch.

All eight councils have used allocation decisions in some way to pursue equity between regions, user groups, gear types or fisheries. Councils have used seasonal and regional apportionments to ensure that fleets in different regions have equitable access to migratory stocks, such as Pacific sardines and Gulf of Mexico king mackerel. The North Pacific council allocated Pacific cod by gear type to preserve its diverse groundfish fleet. The New England council is accounting for interactions between fisheries by setting sub-ACLs and ACL sub-components.

Allocation decisions are inextricably linked with data quality, whether the issues is having data that is comparable across sectors or of a fine enough resolution. The Western Pacific council set a combined recreational and commercial ACL for bottomfish, due to a lack of sector-specific catch data. The Caribbean council had sufficient recreational data to set a separate recreational ACLs for reef fish in Puerto Rico, but not in the U.S. Virgin Islands. Across councils the lack of comprehensive and timely recreational data collection under the Marine Recreational Fishing Statistics Survey has affected each council’s discussion of allocation in conjunction with ACLs and AMs.

New Uses for Allocation

Allocation presents ongoing challenges as well as new opportunities. Across all eight councils, there are recent examples of the use of direct and indirect allocation as a tool for achieving socioeconomic or other management goals for a fishery. Sometimes these goals are clearly articulated at the outset, while in other cases the reverse occurs and a new allocation challenge prompts the council to explore or revisit the management objectives for a fishery.

As examples, the North Pacific and Western Pacific councils have both taken action to create new opportunities and build capacity for native residents to participate in federal waters. The Pacific council is using a quota set-aside to support an adaptive management program that will mitigate unforeseen consequences of groundfish rationalization. Outside of the council process in New England, in an example occurring outside the council process, states and privately funded organizations are creating groundfish permit banks to help small-scale participants and fishing communities. The Mid-Atlantic council proactively established a recreational allocation of Atlantic mackerel to manage future shifts in effort by sector, and the Caribbean council set regional ACLs to account for regional shifts in effort. The South Atlantic council is considering reallocating shares in its IFQ-managed wreckfish fishery, and possibly creating a recreational allocation in what has historically been a commercial fishery. In the Gulf of Mexico, the council is considering how responsive allocation needs to be given the recent Deepwater Horizon oil spill.

Looking forward

Across regions the discussions of allocation and accountability have motivated councils to develop innovative methods for accounting for interactions between fisheries. The Gulf of Mexico council established a committee to look at integrating the red snapper and grouper/tilefish IFQs, which are structured as two separate IFQ programs within the same multispecies reef fishery. New England is considering improving compatibility between the closely related groundfish, dogfish, skate and monkfish fisheries.

Following the implementation of ACLs and AMs, all eight councils will have the mechanisms in place to uphold greater accountability across user groups. In some regions like the Mid-Atlantic this will mean greater accountability to long-standing commercial and recreational allocations; in other regions, new allocations will be enforced with accountability measures from the outset. Where user groups with different levels of accountability share a single combined ACL, councils and stakeholders are looking ahead to consider the consequences of accountability measures. In several regions the for-hire sector is supporting dividing a recreational ACL into separate private and for-hire ACLs.

Data quality and availability will continue to set parameters for allocation decisions. The new, more robust Marine Recreational Information Program (MRIP) will generate more timely information and expand coverage of under and unsampled areas. Particularly in the Caribbean and Western Pacific, more information about recreational or non-commercial fisheries could permit sector allocations where data was previously insufficient. Allocation discussions may also prompt councils to reevaluate their data collection priorities. For example, if a council wishes to explore net economic benefit analysis as an allocation tool in the future, it will need to prioritize the data inputs that make these analyses possible. Decisions about data collection in the present will determine the range of options councils are able to consider, setting the stage for future allocation decisions.

SECTION 1: NEW ENGLAND FISHERY MANAGEMENT COUNCIL

The New England Fishery Management Council (NEFMC) recently implemented a dramatic management shift to the Northeast Multispecies (groundfish) fishery, from input controls to an output-controlled system of voluntary “sectors”¹. The NEFMC engaged in multiple allocation discussions while simultaneously allocating catch between user groups within and between fisheries. As the new sector-based fishery takes shape, the NEFMC will continue to address interactions between groundfish and other New England fisheries.

Transition to sector management

New England’s Northeast Multispecies Fishery Management Plan (FMP) includes 20 stocks of 12 groundfish species, most of which are overfished and/or experiencing overfishing. In the past the council managed groundfish with a complex set of input controls that included trip limits, closures, and limits on the number of days a vessel can fish (days at sea or DAS). The NEFMC is implementing sector management to increase accountability in the fishery and facilitate annual catch limits (ACLs) and accountability measures (AMs), while reducing administrative complexity and improving flexibility for participants. Sector management was first introduced as part of Amendment 13 to the Northeast Multispecies Management Plan, and adopted for most of the fishery as Amendment 16 in 2010.

Sector operations

Sectors are voluntary, self-selecting and self-governing groups of fishermen that manage annual allocations of groundfish stocks based on their combined permit histories. Each sector has a sector manager and Board of Directors, maintains its own administrative and monitoring structure, and enforces a set of sector bylaws. Although sectors are a form of catch share management, they are not Limited Access Privilege Programs (LAPPs) subject to the MSRA referendum requirement.² Sector members are exempted from most input restrictions and have flexibility to manage their quota and avoid catch of constraining stocks. The NEFMC approved the first sector in 2004, when a group of Cape Cod hook and line fishermen successfully requested to manage their own allocation of Georges Bank cod under a hard catch limit. Cape Cod fixed gear fishermen formed a second sector in 2006. With Amendment 16 the NEFMC established 16 new sectors, which vary in size and account for about 98% of groundfish landings. Those who choose not to join a sector can continue to fish under input controls in the common pool category.

Goals for setting sector allocations

The NEFMC does not have a single overarching allocation policy for New England fisheries. The council developed five goals to evaluate strategies for allocating catch to sectors (NEFMC 2009a):

¹ Amendment 16 to the Northeast Multispecies FMP defines sectors as: “...a group of persons (three or more persons, none of whom have an ownership in the other two persons in the sector) holding limited access vessel permits who have voluntarily entered into a contract and agree to certain fishing restrictions for a specified period of time, and which has been granted a TAC(s) in order to achieve objectives consistent with applicable FMP goals and objectives.” (NEFMC 2009b). A permit holder can only belong to one sector.

² The NEFMC is required to achieve approval from 2/3 of eligible permit holders by referendum vote in order to submit an IFQ program for Secretarial approval (MSA § 303A).

- 1) Address bycatch issues;
- 2) Simplify management;
- 3) Give the industry greater control over their fate;
- 4) Provide a mechanism for economics to shape the fleet rather than regulations (while working to achieve fishing and biomass targets); and
- 5) Prevent excessive consolidation that would eliminate the day boat fishery.

With the exception of preserving the day boat fishery, these goals are an outlook for how sectors will function as a management strategy rather than a vision for what the fishery should look like in terms of the number of participants, the distribution of fishing effort, and other social and economic characteristics. The NEFMC reviewed several allocation strategies, from formulas based solely on catch history to those that incorporated factors such as vessel length and horsepower, and ultimately chose to use catch history.

Baselines for sector allocations

The original two Cape Cod sectors were allocated catch of only one stock, Georges Bank cod, based on landings from 1996-2001. Under Amendment 16 the NEFMC will allocate catch of each stock³ represented by a sector’s combined permit history. During the initial allocation process the NEFMC passed a motion stating that allocations should be “fixed and permanent” in order to provide stability; in other words, the pre-existing sector allocations should not be recalculated based on a new baseline. Consequently the two pre-existing sectors and the 15 new sectors operate under different catch history baselines (Table 1.1).

Table 1.1: Catch history baselines by sector (NEFMC 2009a)

Sector	Georges Bank Cod	All other groundfish
Georges Bank Cod Hook Sector	1996-2001	1996-2006
Georges Bank Fixed Gear Sector	1996-2001	1996-2006
Amendment 16 Sectors	1996-2006	1996-2006

Annual catch entitlements

On an annual basis a sector’s combined history is multiplied by the available catch to yield the sector’s Annual Catch Entitlement (ACE). Each sector develops its own strategy for distributing harvest privileges among its members, and may choose to consolidate effort among fewer vessels. ACE are freely transferable between sectors⁴ and there are no accumulation limits. Constraining allocations of weak stocks, such Georges Bank cod, may limit fishermen’s ability to harvest their entire allocation of healthy stocks. Within a sector fishermen can work together to minimize their catch of constraining stocks in order to maximize their catch of healthy stocks.

Permit banking

Fishing communities are concerned that permits will migrate to the most efficient ports. Organizations such as the Cape Cod Fisheries Trust and the Gloucester Community Fishing Preservation Fund have set up permit banks to raise capital and keep permits in regions by

³ Exceptions: halibut, ocean pout, windowpane flounder, Atlantic wolffish, and southern New England/Massachusetts winter flounder. These stocks are managed using input controls.

⁴ Sectors can lease portions of an ACE on an annual basis. Permanent transfers require a transfer of a permit and its entire potential sector contribution.

providing low-interest loans to new entrants. The State of Maine is developing a state-run permit bank by purchasing permits using emergency groundfish relief funds. In the short term Maine will distribute ACE evenly among eligible participants at no cost; in the long term, it plans to lease ACE to provide opportunities for fishermen and communities that have lost historic access. Maine chose to prioritize small vessels by specifying that permits can only go to vessels under 45 feet and communities of less than 30,000 people. The Maine Permit bank is a pilot State permit bank program for the New England region. The Commonwealth of Massachusetts and the States of New Hampshire and Rhode Island are also collaborating with the National Marine Fisheries Service to develop their own permit bank programs

Interactions between fisheries

Some constraining groundfish stocks affect multiple fisheries. In both the groundfish fishery and the scallop fisheries, for example, incidental catch of yellowtail flounder can prevent one or both fisheries from achieving optimum yield (OY). Amendment 16 sets sub-ACLs and AMs as a way to account for bycatch interactions and avoid penalizing one fishery for the overage of another. The council can adjust sub-ACLs during the specifications process depending on the relative abundance of both stocks. The NEFMC can also set sub-ACLs for recreational harvest if the full ACL of a stock is harvested, and/or the recreational sector accounts for 5% or more of the total harvest. At present only two stocks, GOM cod (33.7% recreational) and GOM haddock (27.5% recreational) meet these criteria⁵.

Amendment 16 also creates a category of non-specified ACL sub-components for incidental catch in amounts too small to monitor, and recreational landings that fall below the 5% threshold (Table 1.2). ACL sub-components are not considered separate ACLs and are not subject to AMs unless harvest increases beyond predetermined levels.⁶

Table 1.2: Examples of Sub-ACLs and ACL sub-components (NEFMC 2009a)

Stock	Sub-ACL			Non-specified ACL sub-component
	Commercial	Recreational	Herring Fishery	
GOM cod	51.3%	33.7%	NA	5.0%
GOM haddock	63.7%	27.5%	0.2%	5.0%

Looking forward

The transition to sector management is likely to shape NEFMC policies for allocating and managing other species that interact with groundfish. The NEFMC and MAFMC joint Monkfish Committee has prioritized catch shares for a management action which will begin development in fall 2010. The NEFMC may explore ways to improve compatibility and recognize interactions between the groundfish, dogfish, skate and monkfish fisheries.

⁵ Average proportion of landings, 2001-2006.

⁶ Less than 5% of harvest for all fisheries except Gulf of Maine/Georges Bank and Southern New England/Massachusetts windowpane flounder.

SECTION 2: MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

The Mid-Atlantic Fishery Management Council (MAFMC) manages several interjurisdictional fisheries and shares responsibility for half of its fishery management plans (FMPs) with one or more management bodies. MAFMC maintains some of the longest held recreational and commercial allocations, and has used regional allocations and seasonal apportionments to distribute opportunity between participants and regions. With the implementation of annual catch limits (ACLs) and accountability measures (AMs) the MAFMC will establish a mechanism to enforce existing allocations. The council also uses allocation to support cooperative research and as a proactive strategy to manage shifts in effort.

Interjurisdictional Allocations

Allocations of summer flounder, scup, black sea bass and bluefish between the commercial and recreational sectors are long-standing, and often a source of tension among stakeholders. These fisheries take place in state as well as federal waters. The MAFMC manages interjurisdictional fisheries in collaboration with the Atlantic States Marine Fisheries Commission (ASMFC), which coordinates management of fisheries in state waters, and in cooperation with neighboring councils (Table 2.1).⁷

Table 2.1: MAFMC FMPs and cooperating state/federal management bodies

FMP (MAFMC lead)	Cooperating Management Bodies		
	State Waters	Federal Waters	
	Atlantic States Marine Fisheries Commission (ASMFC)	South Atlantic Fishery Management Council (SAFMC)	New England Fishery Management Council (NEFMC)
Summer Flounder, Scup, and Black Sea Bass	x		
Bluefish	x	x	x
Spiny Dogfish	x		x
Monkfish			x (lead)

The MAFMC and ASMFC established recreational and commercial allocations based on catch history for summer flounder, black sea bass, scup, and bluefish in the late 1980s and early 1990s (Table 2.2). However, the use of input controls in recreational fisheries may result in larger de facto allocations to the recreational sector if recreational effort and landings are not constrained. For example, the recreational harvest of summer flounder was 12.53 million lbs in 1998, 5.12 million lbs over the harvest target.

Table 2.2: Commercial and recreational allocations of jointly managed stocks

Fishery	Commercial Allocation	Recreational Allocation	Catch History Series
Summer Flounder	60%	40%	1980-1989
Black Sea Bass	49%	51%	1983-1992
Scup	78%	22%	1988-1992
Bluefish	17%	83%	1980-1989

⁷ Of the three interstate fisheries commission, ASMFC is the only one able to enforce compliance by member states. Under the Atlantic Striped Bass Conservation Act, the Secretary of Commerce can impose a moratorium on a state out of compliance with regulatory measures adopted as part of an ASMFC FMP.

The council's recently approved Omnibus ACL/AM Amendment⁸ establishes the mechanisms to set ACLs and AMs, imposing greater catch accountability on both sectors' directed fisheries. Although landings in the commercial fisheries can be managed in near-real time, limitations in methodology, accuracy and timeliness of the Marine Recreational Fisheries Statistical Survey (MRFSS) data preclude in-season adjustments in the recreational fishery. Under emergency rulemaking NMFS implemented the first in-season recreational closure last year, closing the black sea bass fishery after MRFSS data projected and later confirmed that the sector would exceed its allocation. The sector allocations of bluefish include some flexibility to enable the fishery to obtain optimum yield (OY). The bluefish FMP specifies that if 17% of the total allowable landings in a year equates to less than 10.5 million lbs, the commercial fishery may be allocated up to that amount, provided the recreational fishery is projected not to land its full allocation of 83% of the total allowable landings (TAL).

Research Set-Asides

MAFMC allocates a small amount of quota to support scientific research through the Mid-Atlantic Research Set-Aside (RSA) Program. A framework adjustment to the Atlantic mackerel, squid and butterfish; summer flounder, scup and black sea bass; bluefish, and tilefish FMPs implemented a Research Set-Aside Program that reserves up to 3% of a species' TAL for species-specific research. The program supports additional data collection and facilitate collaborative research between stakeholders, research institutions and the government. For fisheries with recreational and commercial allocations, the set-aside is deducted from the combined TAL so that both sector's allocations are reduced proportionally. Set-asides are approved before the commercial quota is finalized each year, so that unused set-asides can be redistributed and not held as unfished allocations.

IFQ Programs and Initial Allocations

In the surf clam, ocean quahog and tilefish fisheries, the commercial sector initiated efforts to limit entry and capacity. The MAFMC manages the first catch share fishery implemented in the United States: the individual transferable quota (ITQ) program for surf clams and ocean quahogs, approved in 1990. MAFMC allocated ocean quahog shares based entirely on catch history,⁹ and used a composite formula to allocate surfclams based 80% on catch history¹⁰ and 20% on vessel size (length x width x depth).

The MAFMC also claims one of the most recently adopted catch share programs, the golden tilefish individual fishing quota (IFQ) program implemented in 2009. The tilefish fishery developed off the Mid-Atlantic in the 1970s and as catches declined in the 1990s, many of the initial participants transitioned to other fisheries. The council allocated initial IFQ shares based on landings history from 2001-2005 for the two preexisting tiered permit categories, and based on equal sharing of combined catch history during the same period for a third part-time permit category.

⁸ Applies to the Atlantic mackerel, squid and butterfish FMP, bluefish FMP, dogfish FMP, summer flounder, scup and black sea bass FMP, surfclam and ocean quahog FMP, and tilefish FMP

⁹ Average landings 1979-1988, excluding the lowest year.

¹⁰ Landings 1979-1984 (counted once) and 1985-1987 (counted twice).

Bycatch allocations

A recent rebuilding plan¹¹ for butterfish allocates a hard bycatch cap on butterfish mortality to the *Loligo* (long-finned squid) fishery, which is currently the primary source of butterfish mortality. The *Loligo* fishery closes when it reaches this cap, which creates an incentive for the fishery to operate more selectively. The bycatch cap is set at 75% of the ACL for butterfish, and the MAFMC can adjust this amount during the annual specifications process. Butterfish bycatch is apportioned by trimester in the *Loligo* fishery, using a bycatch rate method based on the amount of *Loligo* quota and the estimated rate of butterfish bycatch (Table 2.3).

Table 2.3: *Loligo* quota and butterfish bycatch apportionments by trimester (MAFMC 2009)

Trimester	Date	Loligo quota apportionment	Butterfish bycatch apportionment
I	Jan-April	43%	65%
II	May-Aug.	17%	3.3%
III	Sept.-Dec.	40%	31.7%

Other interactions between fisheries are more difficult to monitor and account for. In fisheries where there is not a specified bycatch allocation or cap, bycatch functions as an unspecified allocation to the non-target fishery. The council is concerned about the bycatch of summer flounder in jointly managed NEFMC and MAFMC groundfish and scallop fisheries. Standard bycatch reporting methodology (SBRM) reports bycatch by gear type but not by fishery.

Looking forward

The MAFMC may create a small recreational allocation of Atlantic mackerel as a proactive strategy to manage future shifts in effort. The current FMP factors recreational harvest into the specifications process without setting a formal allocation. The council is considering allocations based on recreational landings from 1997-2007, multiplied by an adjustment factor to account for uncertainty in recreational data collection, and to allow a small increase in landings in the underutilized fishery. If approved, this recreational allocation will implement sector-specific ACLs and AMs consistent with the Omnibus ACL/AM Amendment and will provide accountability necessary to limit catch consistent with the allocation. The council has identified a preferred alternative and will take final action in October of 2010.

¹¹ Between the finding of overfishing in 2004 and completion of the rebuilding plan, an updated stock assessment found that the reference points used to support a finding of “overfished” were not reliable.

SECTION 3: SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

The South Atlantic Fishery Management Council (SAFMC) allocated catch of snapper grouper species between the commercial and recreational sectors based on catch history. Recently the SAFMC took a new approach to allocation by establishing an ad hoc Allocation Committee and developing formulas to allocate catch between the commercial and recreational sectors. The challenge of setting annual catch limits (ACLs) and accountability measures (AMs) for the 73-species snapper-grouper complex, concurrently with ending overfishing of several snapper-grouper stocks, provided the original impetus for council's recent allocation discussions. The council developed these allocation formulas as a strategy for setting inter-sector allocations based partially on catch history and partially on trends in the fishery.

Allocation Committee

SAFMC established an Allocation Committee in December of 2007 to develop allocation alternatives that would facilitate the setting of ACLs and AMs, first for the ten stocks undergoing overfishing as part of Amendment 17¹² to the snapper-grouper FMP in 2010, and later for all other stocks under the council's comprehensive ACL amendment in 2011. The council viewed inter-sector allocations as a necessary first step to setting ACLs and AMs because there is less accountability and greater management uncertainty in the recreational sector.

At present, six snapper-grouper species are allocated between the recreational and commercial sectors (Table 3.1).

Table 3.1: Commercial and recreational allocations¹³ of reef species, based on catch history (SAFMC 2006, SAFMC 2008c, SAFMC 2009)

Species	Year	Commercial Allocation	Recreational Allocation	Catch history years
Black sea bass	2006	43%	57%	1999-2003
Gag grouper	2008	51%	49%	1999-2003
Red pogy	2006	50%	50%	2001-2003
Snowy grouper	2006	95%	5%	1999-2003
Vermilion snapper	2008	68%	32%	1986-2005
Golden tilefish	2009	97%	3%	1986-2008 and 2006-2008

The Allocation Committee was comprised of seven voting council members. The committee considered several alternatives for allocation based on catch history, and explored the use of detailed economic and social analyses, such as a net economic benefit analysis. The committee withdrew an alternative to allocate based on economic and social analyses, concluding that it was not a viable option due to the complexity and data requirements involved, and given the time constraints on both amendments.

¹² Amendment 17 was later split into two parts, 17A and 17B.

¹³ Amendment 13C (2006) to the snapper-grouper FMP set commercial and recreational allocations for black sea bass; for the other four species catch history was used as the basis for commercial quotas, creating a de factor recreational allocation. Amendment 16 (2009) set interim allocations for gag and vermilion snapper.

One of the committee's most difficult decisions was determining whether to subdivide the recreational allocation into separate private and for-hire components. The committee chose to allocate to a combined recreational category, but retained the option to allocate to a for-hire sub-sector as an alternative in the council's Comprehensive ACL Amendment. The committee also considered but rejected a separate category for conservation or non-use allocations. Most committee members felt that this need is met by the MSRA requirement to account for scientific uncertainty.

Allocation Formulas

The allocation committee developed a formula to allocate golden tilefish between the commercial and recreational sectors:

$$\text{Allocation by sector} = 50\% * (\text{landings 1986-2008}) + 50\% * (\text{landings 2006-2008})$$

This formula was used in Amendment 17B (under review) to the snapper-grouper FMP. The Allocation Committee proposed a slightly different formula for allocating other reef fish species:

$$\text{Allocation by sector} = 50\% * (\text{landings 1986-2009}) + 50\% * (\text{landings 2006-2008 for this amendment and 3 years rolling history in the future})$$

The allocation formula is included as an alternative in the Comprehensive ACL Amendment, currently under development. The SAFMC could modify the formula or choose not to specify the formula as its preferred alternative. The allocation formula assigns equal weight to long-term catch history and short-term trends. The time series 1986-present is the longest time series for which reliable landings data is available across all fisheries, while the rolling three-year average of recent catch trends captures changes and trends in landings while smoothing out minor year-to-year variations.

Applying the Allocation Formulas

Using the allocation formula adopted by the council in 2008, the Comprehensive ACL Amendment proposes allocations for many species in the snapper-grouper management complex, excluding those which have already been allocated (golden tilefish and the species in Table 1), and those that are primarily harvested in state waters and/or ecosystem component species. The allocation formula may also be used to set allocations in the dolphin and wahoo fishery. Although the allocation formula is applicable across all fisheries, it can be problematic when landings of one species are heavily dominated by one sector. The allocation for the non-dominant sector may be so small as to increase management complexity and cost beyond the point where the fishery is economically efficient or feasible to manage. Recalculating allocations each year using the allocation formula may also increase administrative costs.

For many snapper-grouper stocks this problem of small allocations will not be immediately resolved. Amendments 17A and 17B to the snapper-grouper FMP establish large closures to protect red snapper, warsaw grouper and speckled hind. These decisions were made to support rebuilding of overfished stocks and were not framed as allocation decisions, but will affect some

communities more than others based on factors such as location along the southeastern coast and the extent to which fishermen are diversified or specialized.

Divers and pot fishermen are still able to fish in the closures created under Amendments 17A and 17B, because they are more selective and able to avoid bycatch of red snapper. This decision was not framed as an allocation decision but indirectly allocates a larger portion of catch to these more selective gear types as compared to hook and line

Looking Forward

The SAFMC is considering substantial changes to several existing FMPs. The ITQ-managed wreckfish fishery is an unusual example of proposed sector reallocation in a fishery that was historically prosecuted by a single sector. The wreckfish ITQ program, implemented in 1992, used an allocation formula based 50% on catch history and 50% on equal allocation among qualified participants. Only 4 of 25 shareholders now participate in the highly specialized fishery. The council is considering revisions to the current program that could include opportunities for recreational participation in order to fully utilize the fishery, and reallocate shares from non-active share owners to recent participants.

The council may also consider prohibiting the harvest of sargassum seaweed. Sargassum may be considered an annual crop exempt from the ACL/AM requirement; however including it in the comprehensive ACL amendment is an opportunity for the council to consider whether it will continue to allocate and thereby allow the harvest of a resource that is also considered essential fish habitat.

Finally, the council is considering extension of their management jurisdiction under Amendment 18 to the Snapper-Grouper FMP. Some snapper grouper species such as snowy grouper and blueline tilefish appear to be increasing their range northward and are targeted by fishermen in the Mid-Atlantic. One of the actions under consideration would extend the snapper-grouper management unit¹⁴ northward to include the EEZ under Mid-Atlantic Fishery Management Council (MAFMC) and New England Fishery Management Council (NEFMC) jurisdiction, and designate separate allocations as a portion of ACLs in the South Atlantic. Amendment 18 also proposes limiting participation in the golden tilefish and black sea bass fisheries with endorsements. The council's current preferred alternative for golden tilefish would favor historical participants. The actions and preferred alternatives for black sea bass would also favor historical participants, and would further benefit small scale fishermen with lower minimum landing requirements and a limit on the number of pots each fisherman can use.

¹⁴ Excluding golden tilefish, black sea bass and golden tilefish, managed under separate MAMFC FMPs.

SECTION 4: GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

The Gulf of Mexico Fishery Management Council (GMFMC) is taking a structured approach to allocation discussions with the adoption of an official council Allocation Policy. Allocation discussions in the Gulf of Mexico focus around fisheries for highly prized reef species, including red snapper, gag, and red grouper. The requirements for annual catch limits (ACLs) and accountability measures (AMs), in combination with new individual fishing quota (IFQ) programs for red snapper and grouper-tilefish, are enhancing accountability throughout the reef fish fishery. Managers and stakeholders are interested in exploring new allocation approaches such as net economic benefit analyses. The GMFMC has also faced unique allocation challenges in coping with natural and manmade disasters.

GMFMC Allocation Policy

In November 2007, the GMFMC established an ad hoc Allocation Committee to develop guidance for allocations between the commercial and recreational sectors. The Allocation Committee was comprised of seven council members, with support from the council's Scientific and Statistical Committee (SSC), and Socioeconomic Panel (SEP). The committee's goal was to distill the existing regulatory guidance on allocation and the objectives of GMFMC fishery management plans (FMPs) into a set of principles that would structure future allocation and reallocation decisions. The council voted to incorporate these principles and guidelines in a formal GMFMC Allocation Policy document, and adopted the Allocation Policy as an official council document in 2009 (Appendix 1)

The Allocation Policy is structured in three parts:

- Principles for Allocation: excerpts of guidance from the MSA and National Standard Guidelines
- Guidelines for Allocation: specify how to initiate, carry out and review allocation and reallocation decisions, encourage allocation decisions to reflect projected socioeconomic and demographic trends, and instruct the council how to avoid or minimize, to the extent possible, indirect allocation effects.
- Suggested Methods for Determining Reallocation: outline strategies for carrying out catch-based, socioeconomic-based, and market-based allocations.

The council voted to temporarily retain the ad hoc Allocation Committee to explore the issues involved in pending amendments to the reef fish FMP. The Allocation Policy has not yet been used, but will guide the development of an action to create separate private and for-hire recreational sectors under the Generic ACL/AM Amendment to several fishery management plans..

Initial allocations in the red snapper and grouper/tilefish IFQ programs

The Gulf of Mexico Reef Fish FMP includes two separate IFQ programs for the red snapper and the grouper/tilefish fisheries (Table 4.1). NMFS administers the two IFQ programs using the same electronic platform. Overfished red snapper are rebuilding and expanding throughout their former range in the eastern Gulf. Grouper/tilefish fishermen in the eastern Gulf are encountering red snapper more frequently, but have had difficulty leasing or acquiring affordable red snapper quota shares and often discard their red snapper catch. As red snapper continues to rebuild the

council has formed an advisory panel (AP) to combine all the commercial reef fisheries into an integrated LAPP.

Table 4.1: Red snapper and grouper/tilefish IFQ programs (GMFMC 2007, GMFMC 2008b)

IFQ Program	Date	Quota share types	Eligibility Requirements	Initial Allocation Formula
Red Snapper	2007	(1) Red Snapper	Class 1 or Class 2 limited entry red snapper license, Gulf of Mexico reef fish permit	Class 1 license holders: 10 consecutive years landings, 1990-2004 Class 2 license holders: five years of data, 1998-2004
Grouper-tilefish	2010	(5) Red grouper, gag, tilefish, shallow water grouper, deep water grouper	Gulf of Mexico reef fish permit	1999-2004 (optional: drop one year)

Historical recreational and commercial allocations

The GMFMC allocated red snapper and grouper (in aggregate) between the commercial and recreational sectors in 1990. The allocation of red snapper has been in place for 20 years, while the allocation of red snapper and gag grouper was updated last year (Table 4.2). The interim allocations of red and gag grouper reflect long term trends: red grouper are more heavily targeted by the commercial sector, while gag grouper supports a substantial targeted recreational fishery. The GMFMC recently allocated two additional reef species, gray triggerfish and greater amberjack, between the recreational and commercial sectors. Amendment 28 to the reef fish FMP will reevaluate the interim allocation of red grouper and possibly other species with guidance from the Allocation Policy.

Table 4.2: Past and present allocations of reef species (GMFMC 1989, GMFMC 2008a)

Sector	Red Snapper		Gag		Red Grouper	
	Original	Current	Original	Current	Original	Current
Commercial	51%	51%	65 %	39 %	65 %	76 %
Recreational	49%	49%	35 %	61 %	35 %	24 %

Socioeconomic analyses as the basis for allocation decisions

The council asked its Socioeconomic Panel to examine the allocation of red grouper between the commercial and recreational sectors of the fishery. The analyses, conducted by the Southeast Fisheries Science Center (SEFSC), evaluated the net economic benefits of the current red grouper allocation and examined the economic effects of different allocation scenarios. Net economic benefit analyses generate metrics that allow for direct comparison between sectors. The council found that while net economic benefit analysis may be a tool to inform future allocation decisions, the time and resources required to conduct each analysis preclude widespread use in the short term.

Sector Separation

The council is considering sector separation—dividing the recreational allocation into separate private recreational and for-hire allocations—as a strategy for managing reef fish. If the Council decides to move forward with recreational sector separation, the GMFMC will use the allocation policy to determine the percentage of the harvest allowed by each sector. Proponents of sector separation believe that a separate for-hire allocation along with improved accountability would

allow for-hire businesses greater flexibility to operate. The for-hire sector is particularly concerned about the potential impacts of accountability measures on for-hire businesses, given the higher level of management uncertainty in the private recreational sector. Critics of sector separation contend that sector separation creates a smaller de facto allocation for the private recreational sector. The GMFMC includes sector separation in the options paper for the Generic ACL/AM Amendment.

Indirect allocation effects

The council took action to reduce incidental take of sea turtles in the bottom longline reef fishery by implementing an endorsement¹⁵ for longline vessels fishing in the eastern Gulf of Mexico. The endorsement is projected to reduce bottom longlining effort by 18-37% (GMFMC 2009b). Longliners who do not qualify for an endorsement will retain their IFQ holdings and may switch gear types or sell their quota shares. In the long term, these new restrictions could have an allocative effect by causing quota and effort to shift from the longline to the vertical gear fishery. In the recreational reef fishery, area closures and bag limits can also have indirect allocation effects. Targeted recreational trips and landings of reef species peak at different times along the Gulf coast, and the ideal fishing season varies between locations. For example, landings of gag peak in the summer along the Florida panhandle, and in the winter along the southwest Florida coast.

Regional allocations

The GMFMC manages king and Spanish mackerel, along with cobia, jointly with the SAFMC under the Migratory Pelagics FMP. The GMFMC has amended the FMP, originally implemented in 1983 several times. Past allocation decisions recognized separate Atlantic and Gulf subpopulations of king and Spanish mackerel, sub-allocated catch by gear types, altered the allocations between the recreational and commercial sectors, and subdivided allocations between the eastern and western Gulf to distribute opportunity more equitably throughout the Gulf.¹⁶ The GMFMC is considering reducing the number of Gulf subzones from 3 to 2 to simplify management and increase flexibility for participants.

Looking forward

The Gulf of Mexico has faced natural and manmade disasters of unprecedented scale, including Hurricane Katrina in 2005 and the Deepwater Horizon oil spill in 2010. Both scenarios have allocative effects by disproportionately restricting fishing effort across certain areas of the Gulf, potentially preventing fisheries from achieving optimum yield (OY) and disrupting businesses. Both events led GMFMC to discuss ways of compensating for short-term impacts to stakeholders, while recognizing that managing for reduced effort in the short-term can have long-term consequences. The council's challenge is in balancing the benefits of short-term flexibility with the long-term needs of management plans and rebuilding timelines.

¹⁵ Average annual landings of 40,000 lbs. reef fish by fish trap and longline gear, 1999-2007. Fish traps were phased out ending in 2007.

¹⁶ A comprehensive review of allocation decisions in the Migratory Pelagics FMP is available as Appendix A to the SAFMC's Generic Allocation Amendment Scoping Document (January 2008).

SECTION 5: CARIBBEAN FISHERY MANAGEMENT COUNCIL

The Caribbean Fishery Management Council (CFMC) manages fisheries in the federal waters of Puerto Rico and the U.S. Virgin Islands (USVI). The direct allocation of catch between user groups is a new management strategy in the Caribbean, where the disparity in data quality between sectors and regions is an ongoing challenge. Stakeholders initiated allocation discussions as the CFMC took measures to establish annual catch limits (ACLs) and accountability measures (AMs). Now that Caribbean fisheries will be held to hard catch limits, the CFMC is using allocation as a strategy to increase accountability while reducing the risk that overages in one part of the fishery will close the entire fishery to all users. The CFMC is also taking steps to improve the quality and timeliness of commercial and recreational data collection.

Data limitations and barriers to allocation

Caribbean fisheries are generally data poor and the CFMC also lacks information about landings and user groups, especially in the USVI. A draft amendment schedule for implementation later in 2010 will bring the reef fish FMP into compliance with the MSRA by setting ACLs for overfished stocks. The reef fish actions of the amendment establish the region’s first sector and regional allocations to the extent that available data allows, while laying the groundwork for improved data collection that could support more precise and regionally specific allocation decisions in the future.

Landings data is recorded at a finer resolution in Puerto Rico than in the U.S. Virgin Islands (USVI). Puerto Rico also has Marine Recreational Fishing Statistical Survey (MRFSS) data while the USVI does not. The CFMC chose to allocate catch between user groups by setting separate ACLs for the recreational and commercial sectors in Puerto Rico but not in the USVI, and by setting three separate regional ACLs for Puerto Rico, St. Thomas/St. John, and St. Croix. ACLs are set at the Fishery Management Unit (FMU) level for snapper in Puerto Rico, and at the family group level (i.e., snapper, grouper, parrotfish) for other reef species in Puerto Rico and all reef species in the USVI (Table 5.1) according to landings data (Table 5.2).

Table 5.1: Outcomes of ACL/AM Decisions by region and user group (CFMC 2010)

ACL/AM Decision	Outcome	
	Puerto Rico	USVI
Decision 1: Separate ACLs/AMs by sector?	Separate commercial and recreational ACLs and AMs	Combined commercial and recreational ACLs and AMs
Decision 2: Separate ACLs/AMs by region?	Separate commercial and recreational ACLs for Puerto Rico	Combined commercial and recreational ACLs and AMs for 1) St. Thomas/St. John and 2) St. Croix

Table 5.2: Catch series used for reference points and allocations (longest available data series consistent across regions): (CFMC 2010)

Region	Sector	Catch history series
Puerto Rico	Commercial	1999-2005
Puerto Rico	Recreational	2000-2005
USVI	Commercial and recreational*	2000-2005

*Based on commercial landings

Regional allocations of reef fish

The CFMC set regional allocations of reef fish to avoid a situation where fishermen from different islands compete for their share of a single region-wide ACL. Stakeholders and the commonwealth and territorial governments supported regional allocations as a way to recognize differences in the fisheries between islands. St. Croix, for example, has more shallow reef habitat and accounts for the majority of parrotfish landings. There are also differences in the culture, gear types and species preferences between the islands.

Regional allocations will ensure that fishing opportunity is distributed between regions in proportion to past landings. ACLs would be based on each island's combined landings in federal and territorial waters. For the purpose of applying accountability measures, the EEZ is divided at the midpoint between islands. Fishermen would be required to land their catch in the EEZ where it was caught. Once a sub-ACL is reached, AMs would be applied to that portion of the EEZ.

Commercial and recreational allocation of reef fish

In Puerto Rico both the recreational and commercial sectors supported a separate recreational ACL, due to concern that a single ACL would result in a race to fish that would favor larger vessels and gear. Similar sector allocations are not possible in the USVI, where recreational data collection is sporadic and usually limited to fishing tournaments. The commercial and recreational fisheries will be managed under a combined ACL managed as a single unit, so that closures and accountability measures will apply to all participants equally. The council is considering family-level bag limits on snapper, grouper and parrotfish as well as an aggregate bag limit of all reef fish, which may create a de facto recreational allocation of reef fish by regulating the rate of harvest.

Looking forward: data improvement and licensing

The CFMC is making data improvement an urgent priority. The council may be able to assign regional and sector allocations at the fishery management unit level in the future, following the implementation of an improved commercial data collection system, more consistent recreational sampling coverage, and new recreational licensing requirements.

SECTION 6: WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

The Western Pacific Regional Fishery Management Council (WPRFMC) develops fishery management policies for fisheries in nearly 1.5 million square miles of federal waters. By law, the council is required to consider traditional indigenous fishing practices¹⁷ in developing fishery management plans (FMPs). Most allocations are indirect and result from measures intended to preserve access for small-scale community fisheries. Conservation measures, including limits on interactions with protected species and the designation of several marine national monuments also have allocative effects.

Fishery Ecosystem Plans

WPRFMC has transitioned from fishery-specific management toward an ecosystem-based management approach. In 2009 the council published five new Fishery Ecosystem Plans (FEPs) for Hawaii, American Samoa, the Commonwealth of the Northern Marianas (CNMI), the Pacific Remote Island Areas, and a region-wide FEP for pelagics. Future decisions grounded in ecosystem considerations could have direct and indirect allocation effects.

Allocations between user groups

A recent amendment to the bottomfish FMP addresses overfishing in the Main Hawaiian Islands with a phased approach to setting total allowable catch (TAC) for the “Deep 7” complex of valuable bottomfish species.¹⁸ The commercial and non-commercial sectors are jointly managed, and the entire fishery is closed when the commercial sector meets its TAC. In order to constrain non-commercial harvest, the amendment imposed a bag limit on combined landings of Deep 7 species. New permitting and reporting requirements under the same amendment could lead to sector allocations in the future.

Previous amendments to the Bottomfish FMP create de facto allocations of all bottomfish (not just the Deep 7) in CNMI and Guam to sustain community-based fisheries and preclude the expansion of large-scale export fisheries. Amendment 10 to the Bottomfish FMP prohibits vessels over 40 feet from fishing within 50 nautical miles (nm) of parts of CNMI and within 10nm of the island of Alamagan. Amendment 9 prohibits vessels over 50 feet from targeting bottomfish within 50 nm of Guam.

Western Pacific Communities: Customary exchange and sector definitions

The council categorizes Western Pacific fishermen as commercial and non-commercial because there is not a clear distinction between recreational and subsistence fishing and there are no licensing requirements. Many non-commercial fishermen will sell part of their catch to cover expenses; moreover, there is a tradition of customary exchange in which non-commercial fishermen will trade their catch for other goods and services. In June of 2010 the council adopted a formal definition of customary or non-market exchange.¹⁹ The distinction between commercial

¹⁷ Sustainable Fisheries Act 110 STAT. 3594 PUBLIC LAW 104–297—OCT. 11, 1996.

¹⁸ The Deep 7 complex includes onaga (*Etelis coruscans*), ehu (*E. carbunculus*), opakapaka (*Pristipomoides filamentosus*), kalekale (*P. sieboldii*), lehi (*Aphareus rutilans*), gindai (*P. zonatus*) and hapuupuu (*Epinephelus quernus*).

¹⁹ In March 2010, the council defined customary exchange as the “non-market exchange of marine resources between fishers and community residents for goods, services and/or social support for cultural, social, or religious

and non-commercial fishing has allocative consequences in marine national monuments, where commercial fishing is generally prohibited.

Marine National Monuments

President Bush designated the Northwestern Hawaiian Islands (NWHI) as a Marine National Monument (renamed Papahānaumokuākea Marine National Monument) by proclamation in 2006. The decision had allocative consequences for the commercial and subsistence fishermen who fished for bottomfish, pelagics and crustaceans in the region. The limited entry crustacean fishery closed immediately, with an annual harvest set at zero, while the limited entry bottomfish fishery was set to be phased out by June 15, 2011. NMFS implemented a voluntary buyback program to compensate the eligible permit holders in the bottomfish and crustacean fisheries (representing 8 and 15 permits, respectively). Both fisheries are now closed.

Limited sustenance fishing is permitted within Papahānaumokuākea National Monument under a category of permits designated for Native Hawaiian cultural practices. Recreational fishing is prohibited. A broader range of non-commercial fishing activities is permitted in the Rose Atoll, Mariana Trench and Pacific Remote Islands Marine National Monuments. In March of 2010, the council defined non-commercial fishing to clarify the group of stakeholders permitted to fish within marine national monuments.²⁰

Western Pacific Demonstration Projects

The Sustainable Fisheries Act (SFA) includes provisions for Western Pacific Demonstration Projects, administered as a grant program through the Department of Commerce to enable Western Pacific communities to “foster and promote traditional indigenous fishing practices” and develop community-based fishing opportunities. Between three and five projects can be funded per fiscal year, for a total of \$500,000. WPRFMC published eligibility criteria in 2002 (67 FR 18512; April 16, 2002) The council reviews projects before submitting them to the Secretary of Commerce for approval. While demonstration projects alone do not allocate catch to communities, they allow communities to invest in infrastructure and capacity.

Conservation measures: Protected species and indirect allocations

In the pelagic fisheries of the Western Pacific, interactions between longline fisheries and protected species prompted WPRFMC to take measures that had allocative effects by redistributing effort across regions, fisheries and gear types. In 2001, WPRFMC prohibited longlining for swordfish due to interactions with protected sea turtle populations. In the short term, this caused some vessels to relocate or target different species. In 2004²¹, the fishery reopened as a limited entry fishery with gear restrictions and limits on the number of swordfish sets and sea turtle interactions allowed.

reasons, and may include cost recovery through monetary reimbursements and other means for actual trip expenses (e.g. ice, bait, food, fuel) that may be necessary to participate in fisheries in the Western Pacific Region.” (WPRFMC 2010)

²⁰ “[F]ishing conducted for sustenance; recreational; non-commercial; traditional; indigenous; culturally significant subsistence, cultural or religious uses; or for other culturally significant events, with sales or barter/trade of catch allowed to cover costs but not to provide profits to participants.” (WPRFMC 2010)

²¹ Although the fishery reopened in April of 2004, the first full fishing season under the new management measures was in 2005

Looking Forward

The 1996 reauthorization of the MSA also includes provisions for community development programs to provide communities with access to Western Pacific fisheries. Eligibility is limited to residents of indigenous communities that lack the harvesting or processing infrastructure to participate in Western Pacific fisheries, and is determined according to the same criteria WPRFMC set in 2002 for community demonstration projects. In June of 2010 NMFS issued a proposed rule that would implement the mechanism for the council to review applications, as a joint amendment to the FEPs.²² Community development programs may have allocative effects by enabling communities to participate in fisheries that might otherwise have been inaccessible.

²² For American Samoa, Hawaii, Marianas, and western Pacific Pelagics FEPs.

SECTION 7: PACIFIC FISHERY MANAGEMENT COUNCIL

The Pacific Fishery Management Council (PFMC) spent much of the last decade developing a rationalization plan for the trawl sectors of its diverse groundfish fishery. Rationalization of the fishery requires multiple levels of allocation, including the allocation of target and non-target species between sectors as well as the allocation of catch between participants within each sector. The council also addresses federal requirements to provide Native American tribes with access to fishery resources, and faces complex allocation challenges with migratory stocks.

Groundfish

Trawl rationalization

Initiated in 2003, the trawl rationalization program is scheduled for implementation in 2011 as Amendment 20 to the Pacific Coast Groundfish Fishery Management Plan (FMP). The PFMC will merge the shoreside whiting and non-whiting (“multispecies trawl”) sectors under a single individual fishing quota (IFQ) program, and manage the whiting mothership and catcher-processor fleets as separate cooperatives (Table 7.1).

PFMC is taking a structured approach to groundfish management in general and allocation in particular by outlining goals and objectives for the fishery:

- In 2000, the council adopted a strategic groundfish plan, “Transition to Sustainability,” developed by the ad-hoc Groundfish Fishery Strategic Plan Development Committee. The strategic plan goal for allocation is “to distribute the harvestable surplus among competing interests in a way that resolves allocation issues on a long-term basis.” The plan outlines 12 groundfish allocation principles (Appendix 2).
- The groundfish FMP includes a list of 7 factors for the council to consider when making allocation decisions. (Appendix 3)
- PFMC maintains a standing Groundfish Allocation Committee (GAC), which develops options for allocating groundfish resources between the recreational and commercial sectors and between commercial gear types. The GAC includes voting representatives from each of the Pacific States, NMFS, the Pacific States Marine Fisheries Commission, the council chair, and non-voting advisors representing stakeholders. The GAC makes recommendations based on the allocation principles and factors outlined in the Strategic Plan and Groundfish FMP.

Initial allocations

The PFMC used the criteria below (Table 7.1) to allocate catch to the four trawl sectors. The initial allocation of quota shares to the IFQ sectors is based on two factors that are weighted approximately 50/50: catch history, and equal distribution of the quota associated with permits retired during a 2003 vessel buyback. The council allocated IFQ shares of constraining overfished stocks partly in proportion to each permit holder’s allocation of target species quota shares, and partly based on estimates of regional variation in the abundance and bycatch interactions with overfished species.

Table 7.1: Initial allocation of quota to the four groundfish trawl sectors (PFMC 2010a)

Sector	Post-Rationalization Structure	Initial Allocation Criteria	Time Series
Mothership (whiting)	Cooperative	Catch history	Best 8 of 10 years, 1994-2003
Catcher-processor	Cooperative	N/A (already managed as cooperative)	N/A
Shoreside whiting	Combined IFQ	Target stocks: Catch history, equal sharing of buyback permits (approx.50:50); Overfished stocks: Allocation of target stocks, bycatch sub-area	1994-2003
Shoreside non-whiting			

Allocations between groundfish sectors

The council is concurrently developing a separate amendment to the groundfish FMP to allocate harvest of predominantly trawl-harvested species between the trawl sectors of the groundfish fishery. Pacific whiting and sablefish²³ are the only species that are formally allocated between sectors; other species are allocated between sectors under a biennial specifications process. Long-term fixed allocations are necessary for the rationalization process to proceed. Amendment 21 allocates catch to the combined trawl sectors, and specifies how catch will be divided between the shoreside whiting and non-whiting fisheries and the at-sea whiting trawl sectors while recognizing existing allocations (Table 7.2). By specifying an allocation for the trawl sectors of the fishery, Amendment 21 creates a de facto allocation for open access, fixed gear and recreational sectors in the groundfish fishery, but not for the tribal sector. Expected tribal take is taken off the top of the ACL/ACT before the council specifies non-tribal allocations. In all trawl sectors some bycatch species are accounted for as yield set-asides, which are not allocated to the fishery, to provide accountability while retaining some flexibility.

Table 7.2: Amendment 21 allocations of trawl-dominant species (PFMC 2010b)

	Allocation Decisions	Allocation Criteria	Mechanism	Time Series
Decision 1	Allocate catch between combined trawl sectors (Whiting motherships and catcher-processors, shoreside whiting and non-whiting) and other groundfish sectors (limited entry and open access fixed gear, recreational)	Catch history	Formal allocation (amendment)	2003-2005
Decision 2	Allocate catch to whiting and non-whiting shoreside sectors	Catch history	Formal allocation (amendment)	1995-2005
	Allocate catch to catcher-processor and mothership sectors	Catch history	Formal allocations for whiting*, darkblotched rockfish, pacific ocean perch, and widow rockfish; informal allocation for canary rockfish (biennial specifications process) (amendment)	1995-2005**

*Whiting is already allocated between the catcher-processor and mothership sectors

**Reflects two catch history periods, 1995-2005 and 2003-2005.

²³ North of 36° latitude

Adaptive management

The multispecies IFQ program includes an innovative adaptive management program (AMP), which reserves a 10% set-aside to mitigate the unforeseen consequences of rationalization. AMP quota shares will be distributed to eligible applicants on a fixed-term temporary basis. AMP will be implemented as a trailing action to Amendment 20. During the first two years of rationalization, the council will discuss the organization of the program and determine specific criteria for allocating AMP quota to applicants.

Tribal Allocations

Native American tribes of the Pacific Northwest, including the Makah, Quinault, Hoh, and Quileute, are granted access to federally managed stocks through the Stevens-Palmer treaties, which recognize tribal fishing rights “at usual and accustomed grounds.” The 1974 case *United States v. State of Washington* (384 F.Supp. 312), now referred to as the “Boldt Decision”, found that tribes should have equal rights to harvest federally managed stocks (in this case salmon) in usual and accustomed grounds. Tribes receive formal allocations of some groundfish stocks such as whiting and sablefish through a federal regulatory process, while harvests of other stocks are determined through the biennial specifications process.

Regional apportionments of sardines

The 1999 Coastal Pelagic Species (CPS) FMP incorporated an existing sardine allocation formula set by California state law, which divided sardine catches between the southern California fleet and the mid-coast fleet based in Monterey. Stakeholders in Washington and Oregon initiated a reallocation discussion when the sardine biomass shifted north along the Pacific coast, causing a concurrent shift in the distribution of fishing effort and shoreside infrastructure. The council structured the allocation as a series of three seasonal coast-wide apportionments.²⁴ Uncaught quota is rolled over into the next period and accountability measures will require overages to be deducted from the next period’s quota.

Looking forward

The PFMC manages highly migratory species (HMS) including tuna and billfish in cooperation with multiple regional fishery management organizations (RFMOs). Allocation between domestic user groups would be a complex task due to the layers of jurisdictional complexity, the diversity of participants, and the spatial/temporal variability in HMS landings. Although the council has not taken steps to allocate catch among domestic user groups, the HMS FMP states that allocation between user groups should be fair and equitable. Like the groundfish FMP, the HMS FMP lists seven factors that the council should consider when allocating HMS catch between domestic user groups. The for-hire fishery, which fishes predominantly in Mexican federal waters, may face an access and indirectly an allocation challenge as the Mexican government considers changes to its fisheries management process.

²⁴ January 1: 35%, July 1: 40%, September 15: 25%.

SECTION 8: NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

The North Pacific Fishery Management Council’s (NPFMC) experience with allocation has focused on the implementation and maintenance of catch share programs. In the non-rationalized²⁵ groundfish fisheries the council is using direct and indirect allocations to manage effort and address interactions with rationalized fisheries. The NPFMC has also taken innovative steps to allocate catch and allow the transfer of quota between the commercial and for-hire halibut fisheries.

Catch Share Management

Initial allocations

The NPFMC addresses allocation on a case-by-case basis and administers more catch share programs, and more types of catch share programs, than any other region. These programs are broadly categorized by the entities that are eligible to hold quota (Table 8.1). A separate program, the Western Alaska community development quota (CDQ) program implemented in 1992, (MSA § 305) allocates quota from Bering Sea and Aleutian Islands fisheries to eligible Western Alaska coastal communities. Challenged with managing diverse stakeholders, often in remote areas, NPFMC administers unique allocation mechanisms such as regional landing requirements and right of first refusal²⁶ at time of transfer to manage for specific social and economic goals. Consideration of non-permit holding stakeholders such as crew in the initial allocation process remains a challenge due to a lack of employment data.

Table 8.1: Current NPFMC catch share programs

Fishery	Area	Year	Program Type
Halibut and sablefish*	Gulf of Alaska, Bering Sea and Aleutian Islands	1995	Individual Fishing Quota (IFQ)
American Fisheries Act (AFA) Pollock	Bering Sea and Aleutian Islands	1999	Cooperative
King and Tanner crab*	Bering Sea and Aleutian Islands	2005	IFQ, Individual Processor Quota (IPQ,) Harvester Cooperatives
Rockfish pilot program ²⁷	Central Gulf of Alaska	2007	Cooperative
Trawl catcher-processor Groundfish (non-pollock)	Bering Sea and Aleutian Islands	2008	Cooperative

*Includes Western Alaska CDQ component

Latent permits and unfished quota shares

In catch-share managed fisheries, unfished quota shares (QS) may be made unavailable by shareholders who are deceased or no longer active in the fishery. In 2006 the council recommended withdrawing inactive halibut and sablefish quota shares and allocating them to

²⁵ In the context of this profile, “rationalized” refers to a fishery that is managed under a form of catch share management. All North Pacific groundfish fisheries are managed under license limitation programs but not all have individual or sector allocations.

²⁶ Allows communities the first right to purchase processor shares that would be transferred to another processor outside the community

²⁷ NPFMC is developing a permanent catch share program

eligible crew members through a lottery. Halibut and sablefish permit holders took initiative to facilitate transfers of inactive QS to the extent that a lottery was no longer necessary. NMFS is developing the rulemaking to withdraw the remaining inactive permits, which would have the effect of increasing the IFQs proportionally for the remaining permit holders.

Bycatch reduction

Prior to passage of the Magnuson Stevens Act (MSA), fisheries for herring, crab, and salmon were managed by the State of Alaska, while halibut is managed by the International Pacific Halibut Commission (IPHC).²⁸ These four species are termed prohibited species, which may not be retained for sale by groundfish fishermen, and must be allocated as bycatch in all fisheries. The fishing industry has explored cooperative arrangements, inter-fleet communication and gear modifications, in order to fish more selectively and avoid bycatch related closures. The Council has also implemented top-down bycatch limit reductions for some rationalization programs.

Groundfish

Direct and indirect allocations in the groundfish fishery

The NPFMC uses direct and indirect allocation mechanisms to manage effort in the non-rationalized groundfish fishery. Some groundfish are already allocated by region, between the inshore and offshore sectors, and by season to protect Steller sea lions, but vessels of different sizes and gear types were still in a race to fish, despite a license limitation program that was implemented in 2000.

Table 8.2: Examples of regional, spatial and seasonal groundfish allocations²⁹

Allocation	Categories	Amount
Regional	Western GOA	35 %
	Central GOA	62 %
	Eastern GOA	3 %
Spatial	Inshore	90 %
	Offshore	10 %
Seasonal	“A” Season (Jan 1-June 10)	60 %
	“B” Season (Sept 1-Dec 31)	40 %

In 2009, the council allocated GOA Pacific cod to gear sectors of the groundfish fishery (Table 8.3). The new sector allocations are intended to reduce uncertainty for participants in the fishery, encourage more selective fishing practices, maintain fleet diversity and create opportunities for smaller boats and the shoreside infrastructure they support. Allocations are based on catch history, with a longer baseline in the Western GOA to reflect shifts in gear type. The NPFMC chose to average several alternatives for catch history series, such that each year in the overall time series may be weighted differently depending on how it was represented in the range of alternatives. The council also created an off-the-top jig gear allocation to create entry-level opportunities for smaller vessels.

²⁸ IPHC has managed of Pacific halibut in U.S. and Canadian waters under an international treaty since 1923

²⁹ NPFMC *Current Issues*, March 2010.

Table 8.3: Allocations of Pacific cod by gear type³⁰

Gear Type	Western GOA	Central GOA
<i>Baseline</i>	<i>1995-2007</i>	<i>2000-2008</i>
Jig (off the top of TAC)	1.0 %	1.5 %
Hook and line catcher-processor	19.8 %	5.1 %
Hook and line catcher vessel	1.4 %	14.6 % (vessels < 50 ft) 6.7 % (vessels >= 50 feet)
Pot catcher vessels and catcher processors	38.0 %	27.8 %
Trawl catcher processors	2.4 %	4.2 %
Trawl catcher vessels	38/4 %	41.6 %

The NPFMC also uses indirect allocations to protect participants’ historic levels of harvest. In the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) trawl, and GOA fixed gear fisheries, the council has established “recency” requirements that limit participation to participants who meet a threshold catch level in recent years. The council also uses “sideboards” to prevent effort from spilling over from rationalized fisheries into the groundfish fishery, in situations where fishermen participate in multiple fisheries. Sideboards restrict participants in a rationalized fishery to their historical level of participation in the groundfish fishery.³¹ Sideboards are also affected by recency requirements and will decrease over time.

Looking Forward

Central GOA Rockfish Catch Share Program

The Central GOA rockfish pilot program is scheduled to end in 2011 and the council adopted a modified program in 2010. The choice of a catch history time series in this reallocation scenario may have implications for the way permit holders in a rationalized fishery make decisions about buying, selling and leasing quota in the future. The council chose the years 2000-2006 as the time series for the permanent limited access privilege program (LAPP), rather than starting with the same baseline (1996-2002) that was used for the pilot program. While the 2000-2006 series is more up to date, catch history from that time series also represents choices made by participants (during the years between the time the pilot program was mandated and implemented) whose incentives for participating in the fishery were affected by the assumption that their catch history had already been captured.

Limited entry and catch sharing in the guided halibut sector

The NPFMC does not consider allocations between the recreational and commercial sectors necessary in most fisheries due to the low level of recreational and subsistence fishing effort in federal waters. Subsistence and private recreational angling landings are factored into the annual specifications process. The State of Alaska has the primary role in managing personal use fisheries in state waters. One exception is the for-hire or “guided sport” halibut fishery, which grew to claim an increasing proportion of landings in the 1990s. The council adopted a limited entry program for the guided sector in 2008 and NMFS will require permits in 2011. There are two categories of permits; transferable and nontransferable, based on past and recent participation. The non-transferable permits will expire as permitholders exit the fishery, reducing

³⁰ NPFMC Current Issues, March 2010.

³¹ Time series and exemptions vary by sector.

the number of active limited entry permits. Eligible Community Quota Entities (CQEs) are able to obtain permits to develop guided angling businesses.³²

The council adopted a catch-sharing plan for the commercial and guided sport halibut sectors, which would allow guided sector limited entry permit holders to lease quota from commercial IFQ permit holders on an annual basis. The plan is structured as a set of tiers which specify how the commercial and guided sport regulations will change depending on the catch limit specified by the IPHC.

³² Communities eligible for CQEs must have a population less than 1500 people, direct ocean access, no direct road access, and have historically participated in the halibut and sablefish fishery.

APPENDIX 1: GMFMC Allocation Policy (GMFMC 2009a)

GMFMC Allocation Policy For Review January, 2009

The allocation policy presented herein was developed by the Gulf of Mexico Fishery Management Council to provide principles, guidelines, and suggested methods for allocation that would facilitate future allocation and reallocation of fisheries resources between or within fishery sectors.

Issues considered in this allocation policy include principles based on existing regulatory provisions, procedures to request and initiate (re)allocation, (re)allocation review frequency, tools and methods suggested for evaluating alternative (re)allocations.

This allocation policy shall be based on the principles, regulatory provisions, guidelines, and suggested methods provided below.

I – Principles for Allocation

- A) Conservation and management measures shall not discriminate between residents of different states.
- B) allocation shall:
 - 1- be fair and equitable to fishermen and fishing sectors;
 - (i) fairness should be considered for indirect changes in allocation
 - (ii) any harvest restrictions or recovery benefits be allocated fairly and equitably among sectors
 - 2- promote conservation
 - (i) connected to the achievement of OY
 - (ii) furtherance of a legitimate FMP objective,
 - (iii) promotes a rational, more easily managed use
 - 3- ensure that no particular individual, corporation, or other entity may acquire an excessive share.
- C) shall consider efficient utilization of fishery resources but:
 - 1- should not just redistribute gains and burdens without an increase in efficiency
 - 2- prohibit measures that have economic allocation as its sole purpose.
- D) shall take into account: the importance of fishery resources to fishing communities by utilizing economic and social data in order to:
 - 1- provide for the sustained participation of fishing communities
 - 2- minimize adverse economic impacts on fishing communities.
- E) Any fishery management plan, plan amendment, or regulation submitted by the Gulf Council for the red snapper fishery shall contain conservation and management measures that:

- 1- establish separate quotas for recreational fishing (including charter fishing) and commercial fishing.
- 2- prohibit a sector (i.e., recreational or commercial) from retaining red snapper for the remainder of the season, when it reaches its quota.
- 3- ensure that the recreational and commercial quotas reflect allocation among sectors and do not reflect harvests in excess of allocations.

II. Guidelines for Allocation

1. All allocations and reallocations must be consistent with the Gulf of Mexico Fishery Management Council's principles for allocation.
2. An approved Council motion constitutes the only appropriate means for requesting the initiation of allocation or reallocation of a fishery resource. The motion should clearly specify the basis for, purpose and objectives of the request for (re)allocation.
3. The Council should conduct a comprehensive review of allocations within the individual FMPs at intervals of no less than five years.
4. Following an approved Council motion to initiate an allocation or reallocation, the Council will suggest methods to be used for determining the new allocation. Methods suggested must be consistent with the purpose and objectives included in the motion requesting the initiation of allocation or reallocation.
5. Changes in allocation of a fishery resource may, to the extent practicable, account for projected future socio-economic and demographic trends that are expected to impact the fishery.
6. Indirect changes in allocation, i.e., shifts in allocation resulting from management measures, should be avoided or minimized to the extent possible.

III. Suggested Methods for Determining (Re)Allocation

1. Market-based Allocation

- i. Auction of quota
- ii. Quota purchases between commercial and recreational sectors
 1. determine prerequisites and conditions;
 - a. quota or tags or some other mechanism required in one or both sectors
 - b. mechanism to broker or bank the purchases and exchanges
 - c. annual, multi-year, or permanent
 - d. accountability for purchased or exchanged quota in the receiving sector

2. Catch-Based (and mortality) Allocation

- i. historical landings data
 1. averages based on longest period of credible records
 2. averages based on a period of recent years
 3. averages based on total fisheries mortality (landings plus discard mortality) by sector
- ii. allocations set in a previous FMP
- iii. accountability (a sector's ability to keep within allocation)

3. Socioeconomic-based Allocation

- i. socio-economic analyses
 1. net benefits to the nation
 2. economic analysis limited to direct participants
 3. economic impact analysis (direct expenditures and multiplier impacts)
 4. social impact analysis
 5. fishing communities
 6. participation trends
 7. "efficiency" analysis
 - a. lowest possible cost for a particular level of catch;
 - b. harvest OY with the minimum use of economic inputs

4. Negotiation-Based Allocation

- i. Mechanism for sectors to agree to negotiation and select representatives.
- ii. Mechanism to choose a facilitator
- iii. Negotiated agreement brought to Council for normal FMP process of adoption and implementation

4. Allocation of groundfish resources

Strategic Plan Goal for Allocation

To distribute the harvestable surplus among competing interests in a way that resolves allocation issues on a long-term basis.

General Allocation Principles:

1. All fishing sectors and gear types will contribute to achieving conservation goals (no sector will be held harmless). The fair and equitable standard will be applied to all allocation decisions but is not interpreted to mean exactly proportional impacts or benefits.
2. Non-groundfish fisheries that take groundfish incidentally should receive only the minimal groundfish allocations needed to efficiently harvest their target (non-groundfish) species. To determine the amount of allocation required, identify the economic values and benefits associated with the non-groundfish species. Directed fishery harvest of some groundfish may need to be restricted to incidental levels to maintain the non-groundfish fishery. Consider gear modification in the non-groundfish fishery to minimize its incidental harvest.
3. Modify directed rockfish gears, as needed, to improve their ability to target healthy groundfish species and avoid or reduce mortality of weak groundfish species.
4. When information on total removal by gear type becomes available, consider discards in all allocations between sectors and/or gear types. Each sector will then receive adjustments for discards before allocation shares are distributed.
5. Fairly distribute community economic impacts and the benefits and costs of allocation coast-wide. Allocations should attempt to avoid concentration and assure reasonable access to nearby resources. Consider the diversity of local and regional fisheries, community dependency on marine resources and processing capacity, and infrastructure in allocation decisions.
6. Consider impacts to habitat and recovery of overfished stocks or endangered species (dependent on affected habitats) when making allocation changes.
7. Allocation decisions should consider and attempt to minimize transfer of effort into other fishery sectors, particularly for state managed fisheries (crab and shrimp).
8. Allocation decisions will: (a) consider ability to meet increased administrative or management costs; and (b) be made if reasonably accurate in-season quota monitoring or annual catch accounting has been established or can be assured to be established and be effective.
9. As the tribe(s) expand their participation into groundfish fisheries, allocations of certain groundfish species may have to be specified for tribal use. In such cases, the Council should ask the affected parties to U.S. v. Washington to convene and develop an allocation recommendation.

Area Management as Related to Allocation

10. Structure allocations considering both the north-south geographic *and* nearshore, shelf and slope distributions of species and their accessibility by various sectors and gears.
11. In addressing recreational/commercial rockfish allocation issues, use the following fishery priorities by species group: for nearshore rockfish, states may recommend a recreational preference, with any excess to be made available for commercial use; for shelf rockfish, the Council may set a recreational preference only on a species-by-species basis; and for slope rockfish, commercial allocation.
12. Licenses, endorsements or quotas established through management or capacity reduction measures may be limited to specific areas through exclusive area registrations and consider port landing requirements.

APPENDIX 3: Excerpt from the Pacific Coast Groundfish Management Plan, as Amended Through Amendment 19, pp.73-74 (PFMC 2008)

“...the Council will consider the following factors when intending to recommend direct allocation of the resource:

1. Present participation in and dependence on the fishery, including alternative fisheries.
2. Historical fishing practices in and historical dependence on the fishery.
3. The economics of the fishery.
4. Any consensus harvest sharing agreement or negotiated settlement between the affected participants in the fishery.
5. Potential biological yield of any species or species complex affected by the allocation.
6. Consistency with the Magnuson-Stevens Act national standards
7. Consistency with the goals and objectives of the FMP.

RESOURCES

Personal Communications

New England Fishery Management Council

Interview with Eric Brazer, Fisheries Policy & Management Coordinator, & Sector Manager, Cape Cod Commercial Hook Fishermen's Association (June 29, 2010).

Interview with Terry Stockwell, Member of the New England Fishery Management Council (June 29, 2010).

Interview with Rip Cunningham, Member of the New England Fishery Management Council (June 30, 2010).

Mid-Atlantic Fishery Management Council

Interview with Rick Robins, Member of the Mid-Atlantic Fishery Management Council (June 15, 2010).

Interview with Chris Zeman, Member of the Mid-Atlantic Fishery Management Council (June 23, 2010).

Dan Furlong, Former Executive Director of the Mid-Atlantic Fishery Management Council (June 30, 2010).

South Atlantic Fishery Management Council

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Interview with Brian Chevront, Member of the South Atlantic Fishery Management Council (June 24, 2010).

Interview with George Geiger, Member of the South Atlantic Fishery Management Council (June 24, 2010).

Interview with Kate Quigley, Fishery Economist, South Atlantic Fishery Management Council (August 19, 2010)

Caribbean Fishery Management Council

Interview with Dr. Jed Brown, Assistant Director and Chief of Fisheries, U.S. Virgin Islands Department of Planning and Natural Resources, (July 2, 2010).

Interview with Sera Harold Drevenak, Senior Policy Analyst, Pew Environment Group (July 27, 2010).

Email with Bob Trumble, Vice President, MRAG Americas Inc.(August 2, 2010).

Interview with Beulah Dalmida-Smith, Member of the Caribbean Fishery Management Council (August 5, 2010).

Interview with Graciela Garcia-Moliner, FMP and Habitat Specialist, Caribbean Fishery Management Council (August 5, 2010).

Gulf of Mexico Fishery Management Council

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Interview with Bob Gill, Member of the Gulf of Mexico Fishery Management Council (June 25, 2010).

Interview with Assane Diagne, Economist, Gulf of Mexico Fishery Management Council (June 23, 2010).

Pacific Fishery Management Council

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Interview with John DeVore, Groundfish Staff Officer, Pacific Fishery Management Council (August 31, 2010)

North Pacific Fishery Management Council

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Email with Benigno Sablan, Member of the Western Pacific Regional Fishery Management Council (July 27, August 4, 2010).

Reviewers

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Documents

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