A Preliminary Review of Harvest Co-op Systems and their Relationship to the Council's Goals and Objectives

Executive Summary
The Pacific Fishery Management Council (Council) is considering the rationalization of the Pacific coast groundfish trawl fishery. Two alternatives exist for achieving rationalization and these are an individual fishing quota (IFQ) program and a harvest cooperative program. These systems have some differences and some similarities but in general each system can assist the Council in moving the fishery toward the goals and objectives for rationalization if correctly specified.

While harvest co-ops and IFQ systems both explicitly or implicitly grant fishing privileges in the form of a share of the allowable catch, the approach for managing the prosecution of fishery resources between the two programs can be quite different. A system of individual fishing quotas requires that an agency conduct the tracking and monitoring of individual vessel catch levels, the processing of quota transfer agreements between vessels or permits, and the enforcement of permit or vessel-level fishing activity. A system of harvest cooperatives is essentially a "hands-off" approach on the part of the agency and the prosecution of fishery resources and the enforcement of those activities is primarily done through private mutual agreement within and across the harvest cooperatives themselves.

While a hands-off approach may be less complex and burdensome for the agency, the success of a harvest co-op system depends on the harvesters in the fishery being few in number, having similar characteristics, and being able to develop agreements amongst themselves. In a fishery with more numbers and more diversity, an IFQ system may be more appropriate even though the complexity of that system may be greater. Information suggests that the characteristics, laws, and regulations of a particular fishery may determine the appropriate rationalization program. Some characteristics may make an individual fishing quota system appropriate while a harvest cooperative system may be more appropriate in another case and in some instances a hybrid between the two may be the best outcome. This document reviews some of the fundamentals of the harvest co-op programs as they exist in April 2007 and contrasts them against elements of the IFQ alternative and the Council's goals and objectives.

Introduction
The Council is considering the rationalization of the Pacific coast groundfish trawl fishery. At its March 2007 meeting, the Council adopted a motion that would analyze two different alternatives for doing so. The first alternative is an individual fishing quota (IFQ) program and the second alternative is a harvest cooperative (co-op) program for sectors of the directed whiting fishery. Both approaches essentially grant entities–or groups of entities–a share of the allowable catch and both approaches have demonstrated success in achieving many social goals including bycatch reduction and gains in economic performance.

Table 1. Summary Overview of the Council's Rationalization Alternatives

Alt 1: Status Quo	Alternative 2: Individual Fishing Quota	Alternative 3: Harvest Cooperatives for Directed Whiting Sectors
	• Establish sector allocations of groundfish species. • Assign transferable privileges to catch a portion of the allocations to entities involved in the non-whiting and whiting sectors of the trawl fishery. • Processors and limited entry (LE) trawl permit holders may receive initial allocations of harvest privileges. • All groundfish species are covered under IFQ either individually or in a complex.	<u>Catcher-Processor sector:</u> • Close the class of eligible participants and maintain the sector allocation of whiting allowable catch. • Sector's fishery closes when allocation or bycatch cap is met. <u>Mothership sector:</u> • Maintain the sector allocation of whiting allowable catch. • Assign a portion of the sector allocation to catcher-vessels based on catch history. • Establish a link between each catcher-vessel share and a mothership and close the class of motherships to new entrants. • Require that catcher-vessels fish with a cooperative or in the non-cooperative portion of the fishery. • Catcher-vessels may abandon cooperative and mothership linkages by fishing in the non-co-op fishery. • Sector is closed when allocation or bycatch cap is met. <u>Shorebased sector</u>: • Maintain the sector allocation of whiting allowable catch. • Assign a portion of the sector allocation to catcher-vessels based on catch history. • Establish processing permits that would allow processors to purchase whiting in first 2 years of program. • Require that catcher-vessel catch be delivered to specific processors based on prior landings (catcher-vessel shares may be connected to more than one processor). • Require that vessels participate in a cooperative or non-cooperative portion of the fishery. • Catcher-vessels may abandon cooperative and processor linkages by fishing in the non-co-op fishery. • Sector is closed when allocation or bycatch cap is met.

A cooperative is used to describe a collective arrangement amongst a like-minded group of individuals. Cooperatives are entities that are controlled by the people who use them. They differ from other business entities because they are member owned and operate for the benefit of members. The general activity of cooperatives being considered under the Council's rationalization program is the harvest of fish, so these types of cooperatives are best described as "harvest cooperatives" and a harvest cooperative can be defined as an entity which acts to coordinate the harvest of its members. The Council is considering harvest cooperatives that would have a privilege to harvest a share of the allowable catch.

Harvest cooperatives are organizations made up of vessels that work together to harvest a fishery resource. These organizations are sometimes made up of several vessels that negotiate catch sharing arrangements amongst themselves without needing agency involvement. Other times these organizations are created by several vessels with quota share assignments that each vessel brings to the cooperative organization. In this case, those vessels typically have the privilege to harvest that share, but can lease all or a portion of that share to another vessel through a private agreement without needing agency involvement. The administration and enforcement of harvest activities among member vessels is primarily done through the cooperative organizations and through private contracts. The regulatory activities of the agency that pertain to inseason harvest levels are generally limited to monitoring for sector or co-op catch levels and closing when a sector or co-op reaches the allocation or OY.

The first example of a harvest cooperative already exists on the West Coast. The Pacific Whiting Conservation Coop is a voluntary association of catcher-processors that have negotiated catch sharing arrangements amongst themselves without agency and Council involvement. The necessary ingredient for this cooperative to form is an allocation of whiting to the sector and a barrier to entry by other catcher-processors that are not part of the arrangement. The mothership and shorebased cooperative proposals are similar to the second example. In the mothership proposal, each mothership catcher vessel permit would have a share of the sector allocation based on their catch history and those catcher vessels would form cooperative arrangements with other catcher vessels. The cooperative organization would coordinate harvest activities of its member vessels and these activities would include leasing of shares between member vessels without agency involvement.

An IFQ system is a program that grants the privilege to harvest fishery resources in the form of a percentage of the allowable catch. These shares are given to individual entities and are privileges to harvest a portion of fishery resources. Quota can be made transferable so that they can be bought and sold on a market. Harvesting shares (IFQ) differ from processing shares (individual processing shares, or IPQ). IPQ grants a privilege to receive a portion of the catch that has been harvested. The Council is not considering IPQ but is considering the allocation of harvest shares in the form of IFQ to limited entry trawl permits and processors.

Individual fishing quota programs grant privileges to harvest a share of fishery resources to individual entities. Each individual entity is responsible for its share of the catch and an agency typically monitors and enforces individual harvest activity. Transfers of quota can be made between permits either permanently or temporarily and these transfers often occur on an open market but are not official until processed by an agency.

How Do Cooperatives and Individual Fishing Quota Programs Compare to One Another?
Harvest co-op and IFQ programs have many similarities in the manner in which they function. They also have several differences. The principal similarity between the two programs is that both programs grant the privilege to harvest fishery resources in the form of a share of the allowable catch. This type of privilege results in many of the benefits typical of Limited Access Privilege Programs including: reduced overcapitalization, reduced bycatch, more efficient use of fishery resources, safer working environment, and more economic certainty amongst other things.

Arguably the principal difference between the two programs is the coordination of harvest activity. In an IFQ program, harvest coordination occurs between members of industry with involvement and oversight on the part of government agencies. In a co-op program harvest coordination occurs between members of industry and the government is often not involved to the same degree. The reason for this difference is relatively straight-forward. In an IFQ program the enforcement burden is placed on the individual, while in a co-op program the enforcement burden is placed on the co-op organization.

In an IFQ program there are inseason transfers of quota shares that occur between different members of industry. During these inseason transfers, fishermen must coordinate with one another and agree on a transfer arrangement. When a transfer is agreed upon, the quota seller and quota purchaser submit a quota share transfer request to an agency for processing and recording and after that process occurs the quota transfer is official. Agency involvement is necessary in this case because the agency needs that information to adequately enforce the actions of individuals and their corresponding catch levels. In a co-op program the members of the cooperative coordinate the harvest among themselves without much agency involvement. Members of the cooperative either create voluntary agreements that apportion the catch to member vessels, or form a cooperative organization with pre-specified catch shares and enter into temporary leasing agreements specifying how one vessel in a co-op can harvest the share of another vessel in a co-op. In this arrangement the agency does not need to be involved in the transfer arrangements because the agency enforces the co-op organization as a whole instead of the actions of individuals. In co-op programs there can also be transfers across cooperatives (a transfer of catch privileges from one co-op to another) and these transfers are often done without agency involvement as well.

IFQ systems are focused on the individual fisherman, while co-ops are focused on the organization. In an IFQ system, the interests of individuals are protected through the allocation of harvest privileges and the enforcement of those privileges at the individual level. In a co-op system, protection for the interests of members and the organizations is achieved by holding each co-op responsible for the actions of its members and penalizing co-op organizations when necessary. If a co-op is penalized for an action, it may decide to place that burden on the vessel that acted illegally (depending on the co-op operating agreement). Members of a co-op organization are protected from the actions of other vessels by establishing individual harvest privileges that are enforced by co-op members. Co-ops are also protected through the existence of a non-co-op sector where individuals can participate without being grouped into a forced arrangement with other vessels. A forced grouping of individuals may diminish the amount of voluntary cooperation necessary for co-ops to work. Having a non-co-op sector allows vessels a way out of a cooperative if necessary and potentially protects the co-op organization by allowing for a fishery where problem vessels can participate without disrupting the co-op organizations.

This non-co-op fishery has the potential to be an irrational race-for-fish fishery because vessels do not have individual catch limits (the allowable catch for a non-co-op fishery is common to all participants in the non-co-op fishery) and this can impact other sectors if bycatch caps are common across all sectors. In an IFQ system, the potential for an irrational sector of the fishery to develop is less likely because each vessel has an individual catch amount and a high degree of accountability because of the lack of commonality. However, the irrational behavior of non-co-op fishery participants is mostly theoretical. In practice members of the non-co-op sector often continue to behave in a rational manner by communicating and negotiating catch agreements.

Some Similarities between Harvest Co-ops and IFQ Systems

The difference between co-ops and IFQ systems is often times not black and white. Coop programs can take on many characteristics of IFQ programs and vice versa. In general, the level of similarity amongst vessels in the fishery, the level of similarity among markets for participants in the fishery, and the number of vessels in a fishery may help determine the appropriate mix of commonality for a rationalization program. The purest form of a cooperative (one where a Council makes no vessel or permit-specific allocations) will most likely have a small number of vessels with similar objectives and similar constraints on their harvesting activity. Alternatively, the purest form of an IFQ program may have many participants with a wide array of vessel characteristics, markets, and regions. As participants in an IFQ program acquire similar objectives, constraints, markets, etc, that fishery may very well take on characteristics that are similar to co-op-type rationalization programs. Alternatively, as participants in a co-op program grow in number, have dissimilar markets, and have variation in the opportunities available, that fishery may very well take on characteristics that are similar to IFQ-type rationalization programs.

In the West Coast groundfish fishery several visions exist for what a rationalized groundfish fishery would look like. Some of the participants in the whiting fishery have expressed concepts that resemble elements of an IFQ-based program while some participants in the non-whiting sector have discussed concepts that resemble a co-op program. The following bullets outline some of the concepts found in the rationalization proposals, the way some of those programs are envisioned to function, and areas where those concepts and visions begin to blur the line between co-ops and IFQ systems.

- The proposal for the rationalization of the catcher-processor sector would arguably look like one of the purest forms of a harvest co-op—the sector as a whole would receive a whiting allocation, participants in that sector would be limited by closing the class, and participants in that sector would negotiate catch sharing agreements without agency involvement. Representatives of the catcher-processor sector have stated that a single co-op would be the outcome because of the similarities of vessels and companies in that sector.
- The proposal for the rationalization of the mothership sector would arguably take on some characteristics of an IFQ program. Because of the number of catcher vessels and the variation in historical harvest activity, each catcher vessel in that sector would be assigned a share of the allowable catch which must be pooled in a co-op or the non-co-op fishery. Representatives of the mothership sector have indicated that they believe somewhere on the order of 3 co-ops would exist following rationalization. These three co-ops would harvest the collective share of its member catcher vessels, but co-ops may trade allowable catch amongst themselves. The designation of shares to catcher vessels

and the transfer of allowable catch between co-ops are two characteristics that resemble the structure of an IFQ program.

- The proposal for rationalization of the non-whiting trawl fishery is an IFQ program. That fishery has a relatively large number of vessels, its participants cover a large geographic area, and its participants have many different markets and opportunities. One of the similarities faced by participants in this fishery is the common need to avoid depleted rockfish species and the common threat that one "disaster tow" could reach, meet, or exceed the allocation of that species for that sector. A disaster tow would also mean that a fisherman would need to spend substantial financial resources to acquire enough quota of a depleted species to cover that disaster tow (depleted species quota is likely to be extremely expensive). Doing so may mean going out of business. Representatives of this sector have discussed the concept of "risk pools" that would be created through private mutual agreements. Fishermen involved in a risk pool would transfer quota to another fishermen in that pool if one of them has a disaster tow. These transfers would not occur on an open market where the price of depleted species quota is likely to be extremely costly and perhaps cost-prohibitive. The concept of risk pools is a characteristic that resembles the structure of a harvest co-op program.

Relationship to the Council's Goals, Objectives, Constraints and Guiding Principles

Both IFQs and harvest co-ops can achieve the Council's goals and objectives for a rationalization program. This section describes generally the manner in which co-ops and IFQs can meet the Council's goals and objectives and also describes other considerations for a rationalization program that have been discussed such as the ability to accommodate new entrants.

At the March 2007 meeting, the Council adopted several goals, objectives, and constraints and guiding principles to help steer the development of a rationalization program.

Goals	Create and implement a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch.
Objectives	1. Provide a mechanism for total catch accounting. 2. Provide for a viable, profitable, and efficient groundfish fishery. 3. Promote practices that reduce bycatch and discard mortality and minimize ecological impacts. 4. Increase operational flexibility. 5. Minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical. 6. Promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry. 7. Provide quality product for the consumer. 8. Increase safety in the fishery.
Constraints and Guiding Principles	1. Taking into account the biological structure of the stocks including, but not limited to, populations and genetics. 2. Taking into account the need to ensure that total OYs and allowable

biological catch (ABC) are not exceeded.
3. Minimize negative impacts resulting from localized concentrations of fishing effort.
4. Accounting for total groundfish mortality.
5. Avoiding provisions where the primary intent is a change in marketing power balance between harvesting and processing sectors.
6. Avoiding excessive quota concentration.
7. Providing efficient and effective monitoring and enforcement.
8. Designing a responsive review evaluation and modification mechanism.
9. Take into account the management and administrative costs of implementing and overseeing the IFQ or co-op program and complementary catch monitoring programs and the limited state and federal resources available.

In addition to these goals, objectives, and constraints and guiding principles, the Council requested that a discussion paper be prepared by staff describing why co-ops are needed, why co-ops cannot be created without Federal regulation, the need for a closed class of processors, and how co-ops can be created without leaving anyone out.

Both IFQs and harvest co-ops can achieve the goals set forth by the Council. While specific elements may need to be implemented in order to achieve some specific goals and objectives, empirical examples have routinely shown that environmental and economic gains are achieved through rationalization. Under a rationalized fishery, the incentive to race for fish is eliminated because entities are granted a defensible share of the allowable catch and this type of fishing privilege eliminates the aspect of competition that exists in non-rationalized fisheries. A fishery being prosecuted at a more reasonable pace will have lower cost, higher product recovery, higher product quality, and will tend to use less gear to catch the same amount of fish. Less gear in the water will arguably reduce impacts on habitat. In addition, empirical reviews of rationalized programs have shown that bycatch is reduced substantially in a rationalized fishery because of the focus on profit maximization instead of catch maximization. Catching and sorting bycatch can be costly for individual fishermen.

Economic gains are realized through other means as well. The increased level of individual accountability can create an increased level of opportunity that does not exist under a command and control type of management system. This increased opportunity is directly linked to the operational flexibility provided by performance-based management of which rationalization is one example. Under a performance-based system, individuals have the incentive to modify behavior in a manner that can result in access to more target species and more utilization of under-utilized species. A rationalization program has the additional benefit of quota transferability (either in the form of quota transfers between individuals, through harvest arrangements between vessels in a co-op, or through a co-op-to-co-op transfer) which increases the flexibility of entities involved in the fishery. If, for example, one particular entity cannot access the share of catch allocated to them, they may transfer that catch to another entity that is more successful. This transferability increases the opportunity for the fishery as a whole and can result in increased access and utilization of target species.

Economic stability is achieved through a defensible allocation of harvest privileges and the perception that those are long-term. A rationalization system that protects participants from new entrants and free-riders will increase the certainty those participating entities have in future fishery activities. Increased certainty fosters the development of long-term business planning and such long term planning arrangements result in increased stability for entities directly and indirectly involved in the prosecution of the fishery.

The "stewardship effect" is an argument that has been made routinely as one mechanism that decreases the environmental impact of fishing in a rationalized fishery. The argument for this effect is that through the granting of long-term privileges to harvest a share of fishery resources, fishermen will begin to act like share-holders of a company and be interested in the long-term sustainability of the fishery resource. This perspective on the part of fishermen results in voluntary measures that minimize the negative environmental impacts that may be caused by fishing and increases the sustainability of the fishery. The National Research Council explicitly addressed this argument and makes reference to other incentives created by rationalization including the incentive to high-grade (to target and catch large fecund fish), and the incentive to misreport catches. If these incentives are greater for participants in the fishery as a whole than the stewardship effect then the rationale for engaging in voluntary behavior to encourage sustainability may not exist. The incentive to engage in misreporting and the targeting of valuable large fish can be overcome through highly effective monitoring, robust enforcement, and a high degree of scientific research and understanding. Effective monitoring and enforcement would tend to overcome the incentive to misreport catches, and a high degree of scientific research and understanding would tend to discourage the targeting of large fecund fish if there are negative repercussions to do so and the repercussions of doing so are clear. In other words, if a rationalization program is constructed with long-term fishing privileges, a high level of adequate monitoring, robust enforcement, and a high degree of scientific research and understanding on the part of fishery participants, the stewardship effect may exist.

Mechanisms necessary to achieve the conservation and economic goals the Council has set forth include, but are not limited to:

- Allocating a portion of the allowable catch:
    - In an IFQ system this means allocating long term privileges to harvest a share of the allowable catch to individual entities.
    - In a cooperative system this may mean allocating long term privileges to harvest a share of the allowable catch to individual entities, or establishing a sector allocation and "closing the class". The appropriate approach is fishery and sector specific.
- Making those allocations defensible and enforceable:
    - In an IFQ system sufficient penalties would be established for exceeding ones quota pounds in a particular year.
    - In a cooperative program the co-op entities themselves may be responsible for administering and enforcing penalties. In some cases the agency may administer and enforce penalties. The appropriate approach is case-specific.
- Adequate monitoring:
    - Adequate monitoring is necessary for determining the amount of catch that is occurring amongst participants in the fishery and ensuring that management objectives are met.

- In a co-op system with limited agency involvement, information gained from the monitoring of vessels must be made available to participants in the fishery. This is necessary for self-enforcement of co-op agreements.

- Making catch share privileges long-term or creating the perception that they are long-term:
  - A perception that catch share privileges are long term will result in long term business planning which increases economic stability.
  - A perception that catch share privileges are long term will foster the "environmental stewardship effect" if it indeed exists.

A discussion of the need for co-ops, why Federal regulation may be necessary to establish co-ops, the need for a closed class of processors, and how co-ops can be created without leaving anyone out:

The consideration of harvest co-ops as an alternative for rationalization is arguably worthwhile because of the reduced need for agency involvement (and thus agency cost) and the degree of flexibility achieved by fishery participants. This flexibility is achieved because adjustments in fishery patterns and behavior are often made quickly and collectively amongst all participants without the need for a regulatory action.

Different levels of Federal regulation may be necessary to form a harvest cooperative. In the Pacific whiting sector, the Pacific Whiting Conservation Cooperative formed without specific regulatory action. The threat to this cooperative is the possibility that new entrants may come into the catcher-processor sector and disrupt the catch sharing agreements made by existing participants. This may cause the catcher-processor cooperative to break apart. Arguably the necessary action for maintaining the catcher-processor cooperative is a limited entry system that closes the class to new entrants. In other sectors of the whiting fishery, the probability that participants will create and agree on catch sharing arrangements (as was done in the catcher-processor sector) is unlikely because of the number and diversity of participants and the variation of catch history among vessels in that sector. In the shorebased and mothership whiting sectors the formation of co-ops would therefore need a regulatory action specifying that each vessel has a pre-determined share of the allowable catch that is available to them. This is necessary to determine the amount of catch available to each co-op and the amount of catch available to each vessel if vessels in a co-op can't mutually agree on a catch-sharing arrangement.

Closing the class of processors is a fairly controversial action. Several arguments exist for closing the class of processors in a co-op system and one of these arguments is because the co-ops form around the processors to which they deliver. In this type of structure, the processor or mothership acts as the centerpiece of the organization and helps to coordinate and facilitate the harvest activities of vessels in a co-op. Having an open class of processors would arguably tend to disrupt the organizational structure and coordination of harvest activities if catcher-vessels are not consistently delivering catch to a single entity. This is because motherships may begin to compete for catcher-vessels throughout a season and this could erode the stability in the CV-mothership relationship that's necessary for a co-op to function effectively if the mothership is the organizational centerpiece. Another argument for closing the class of processors is because it fosters economic stability. A system with a closed class of processors and a linkage between

catcher-vessels and processors arguably creates an organizational structure that begins to resemble a vertically integrated firm between processors and catcher-vessels. In this type of structure, profit sharing arrangements are more likely to result and the interests of the processor and catcher-vessels become more aligned. Profit sharing arrangements and a set of common goals would tend to lower the risk of strikes which can polarize industry members and cause economic harm to all sides of industry involved.

In some instances harvest cooperatives appear to have resulted in the formation of corporate-like entities and some believe this creates a barrier to entry on the part of fishermen not in a co-op or crewmembers that wish to work their way up to an owner-operator position. Depending on the sector, the perception that there is a barrier to new entry may not be accurate. In a catcher-processor sector for example, it may not be reasonable to assume a crew member could acquire enough financial assets to make their way up to a point where they own and operate a catcher-processor vessel. In this type of a sector it may be more reasonable to assume that an individual could gain employment in a fishing company, climb the corporate ladder, and eventually buy shares of the company and if this is the case, the formation of a harvest cooperative system has not necessarily created any new barriers to entry. In a sector with less capital necessary to engage in the fishery it may be more appropriate to assume that an individual could make their way up to a point where they own and operate a vessel and eventually acquire shares or a permit necessary to join a co-op. However, in all co-op proposals the price of a CP, mothership, or shorebased sector permit is likely to be fairly costly and this means that substantial capital assets may need to be invested in order to purchase a permit and enter the sector.