

18-month review

Bering Sea and Aleutian Islands crab management

As a part of the crab rationalization program, the Council requested an analysis to be delivered the 18 months after implementation of the program examining two aspects of the program, a) the distribution of benefits between harvesters and processors arising under the harvest share/processor share allocations and arbitration system and b) the distribution of landings of different harvest share types. Specifically, the Council requested:

The analysis is to examine the effects of the 90/10 A share/B share split and the binding arbitration program on the distribution of benefits between harvesters and processors. After receiving the analysis, the Council will consider whether the A share/B share split and the arbitration program are having their intended effects and, if not, whether some other A share/B share split is appropriate. In addition, staff shall the prepare an analysis of the application of the 90/10 Class A/Class B split and regionalization to captain and crew shares (C shares) for consideration by the Council 18 months after fishing begins under the program. The analysis is to examine the landings patterns of B and C shares to determine whether the distribution of landings among processors and communities of B and C shares differs from the distribution of landings of the general harvest share pool. After receiving the analysis, the Council will consider whether to remove the 90/10 Class A/Class B split from C shares, which is scheduled to take effect three years after the beginning of fishing under the program.

This paper is staff's response to that request. Since these two aspects of the rationalization program are generally unrelated, the paper treats each discretely; with the arbitration and 90/10 A share/B share split discussion first, followed by the discussion of B share and C share landing patterns and the application of 90/10 A share/B share split to those shares after 3 years. Both aspects, however, must be considered in the context of the overall program. This paper first describes that structure, followed by analyses of the two issues identified by the Council.

Only 18 months have passed since the implementation of the rationalization program. As a result, less than two full seasons of fishing has occurred and less than two full cycles of the complex arbitration program have transpired under the program. As with any complex system, participants are likely to develop a better understanding of the system, learning and adapting their participation over time. In addition, the operation of certain aspects of the arbitration system could become more predictable over time. Adequately assessing the performance of the system prior to allowing the system to operate for several seasons is difficult, since participants have had little time to adapt. Also, little information or data are available for study. As a consequence, most conclusions in this paper should be viewed as preliminary.

The Council should also bear in mind that the change to any share-based management system requires participants to modify their behavior. For example, in the derby fisheries landings were made during and after the compact seasons. One of benefits expected to arise from a share-based management program is that participants will time their activities to achieve the greatest market benefit from fisheries, extending their fishing over a notably longer period of time. This extension of fishing over a longer period alone can be expected to complicate scheduling of deliveries. In assessing various program components, the Council should be careful to consider the extent to which the change to a share-based management program might have contributed to those difficulties.

Through this paper and public testimony, the Council may develop some areas of concern with certain aspects of the rationalization program. Depending on the nature and severity of those concerns, the Council could choose to act in one of several ways. First, for issues that are minor and likely to resolve themselves through negotiation and adaptation of participants, it could be most expedient for the Council to take no action. Second, for issues of interpretation the Council could assist participants by clarifying its intent concerning the program. For these issues (which would relate only to nuances of the arbitration program), it is possible that Council could clarify its intent, provided that intent is consistent with regulations and prior Council actions. Third, certain issues could be addressed through amendment. In considering whether to develop an amendment package for analysis, the Council should consider whether the system can be responsive to the problem without Council action. When developing the arbitration system, the Council purposefully chose not to fully specify certain aspects of the system. The Council adopted this approach to allow the system to be more flexible, allowing industry to respond to concerns without resorting to the Council system. Using this flexibility, participants could adapt contracts establishing the arbitration system to address system shortcomings. The Council, however, should note that the participants will be able to exercise this flexibility only to the extent permitted by the regulations. Specificity in the regulations could prevent the participants from addressing some shortcomings without Council action.¹ If an issue appears likely to resolve itself over time, the Council could develop a plan to take action at a future time, if appropriate and necessary. As part of this approach, the Council could request staff to specifically examine the issue in the three year review. If an aspect of the program appears to be unlikely to resolve itself over time, the Council could develop a purpose and need statement and alternatives to initiate an amendment package.

For this paper to be effective it must be complex. One purpose of the paper is to provide the Council with information for assessing the success of certain aspects of the crab rationalization program. One factor that affects success is complexity. The ability of harvesters and processors to effectively participate in the program can be diminished by program complexities. For the Council to understand the challenges faced by participants, aspects of the program must be described in detail. A second possible use of this paper could be for the Council to determine whether amendment to the program is needed and, if so, to initiate an amendment package to address perceived shortcomings. To develop provisions to resolve shortcomings, the Council must understand the issues in detail.

If the Council elects to consider amendments, particularly to the arbitration system, it should keep in mind that the complexity of that structure establishes a specific balance of power in negotiations between participants in the harvesting and processing sectors. While an amendment on its face may appear to be a benign measure that will resolve an issue in a straightforward manner, it is possible that the relative negotiating position of participants in the two sectors could be affected. Careful consideration of the redistributive effects of a potential action on negotiating leverage should be considered even for changes that appear to be simple administrative measures.

Summary of the rationalization program

Under the program, eligible LLP license holders were issued quota shares (QS), which are long term shares, based on their qualifying harvest histories. These QS annually yield individual fishing quota (IFQ), which are privileges to harvest a particular amount of crab in pounds in a given season. The size of each annual IFQ allocation is based on the amount of QS held in relation to the QS pool in the fishery. So, a person holding 1 percent of the QS pool would receive IFQ to harvest 1 percent of the annual TAC in the fishery. Ninety percent of the IFQ are issued as “A shares” or “Class A IFQ,” which must be delivered

¹ In some instances, participants may believe that the specificity of the regulation in some respects could prevent modifying the arbitration process without risking liability. The Council will need to assess these concerns in deciding whether amendments are necessary to make modifications to the program.

to a processor holding unused individual processor quota (IPQ).² The remaining 10 percent of the annual IFQ are issued as “B shares” or “Class B IFQ,” which may be delivered to any processor.³ Processor quota shares (PQS) are long term shares issued to processors. These PQS yield annual IPQ, which represent a privilege to receive a certain amount of crab harvested with Class A IFQ. IPQ are issued for 90 percent of the TAC, creating a one-to-one correspondence between Class A IFQ and IPQ.⁴

The A share/B share allocation structure has the effect of limiting market choices of participants, since only the 10 percent allocation of B shares are free to be sold to any buyer. Under this structure, the 90 percent A share allocation (with corresponding IPQ) is intended primarily to add stability to the processing sector and provide a means for compensated removal of processing capacity from the fisheries. The 10 percent B share allocation is intended to provide negotiating leverage to harvesters, an opportunity for entry to the processing sector, and a check on the processing market (by providing a negotiated market price)⁵. To aid participants in resolving price disputes, the Council developed a binding arbitration program. The first part of this review examines the 90 /10 division A share/ B share division and the arbitration system.

Three percent of the initial allocation of QS were issued to captains as “C shares”, based on their harvest histories. The Council applied an owner-on-board provision and leasing prohibition to these shares, to ensure that C shares would benefit active captains and crew. The Council recognized that logistical complications would likely arise early in the program, as a result of the interaction of owner-on-board requirements, leasing prohibitions, fleet contraction, and the landing requirements on A shares. To facilitate fleet coordination, the Council exempted C shares from the landing requirements of A shares and prohibitions on leasing for the first three seasons under the program. In addition, the Council showed a willingness to consider whether application of the 90/10 A share/B share split to C shares is appropriate. As a starting point, the Council tasked staff to analyze whether the distribution of C share landings among processors differs from the distribution of shares in the general harvest pool. The second section of this analysis more fully describes the management of C share allocations under the program and the distribution of landings using those shares.

Analysis of the 90/10 A share/B share division and the arbitration program

The Council has requested that staff analyze whether the 90/10 A share/B share split and the arbitration program have the intended effect, or whether some other A share/B share ratio is appropriate. The Council’s problem statement used in the development of the crab rationalization program provides insight into the Council’s intent concerning the share allocation and arbitration system. The problem statement specifically called for a program that “...maintains healthy harvesting and processing sectors...” and

² Currently, the C shares issued to captains are an exception to this generalization. Those shares are not subject to IPQ landing privileges during the first three years of the program. During that period, the IPQ corresponding to the C share allocations are withheld.

³ The terms “A share” and “Class A IFQ” are used interchangeably in this paper, as are the terms “B share” and “Class B IFQ”.

⁴ Although 90 percent of IFQ issued each year are issued as A shares, individual allocations can vary from 90 percent. Holders of PQS and their affiliates receive their entire IFQ allocations as A shares (and are not allocated B shares). The rationale for issuing only A shares to PQS holders and their affiliates is that these persons do not need the extra negotiating leverage derived from B shares. To maintain 10 percent of the IFQ pool as B shares requires that unaffiliated QS holders receive more than 10 percent of their allocation as B shares (and less than 90 percent A shares).

⁵ It should be noted that the limitation on the market resulting from the 90 percent A share/IPQ allocation dampens the market for B share landings by limiting the size of the open market for landings. So, the B share price (while providing an indication of the free market price) may not reflect the price that would exist in the absence of the A share/IPQ allocations.

“...and seeks to achieve equity between harvesting and processing sectors, including healthy, stable, and competitive markets.” In the development of the program, the Council must have recognized the conflicting goals expressed in this statement. Competition in markets typically contributes to instability, as participants work to secure their position. Recognition of this tension is shown in the Council’s statement of intent (expressed at the time the program was adopted), which states, in part, that:

Share allocations to harvesters and processors...are intended to increase efficiencies, provide economic stability and facilitate compensated reduction of excess capacities in both harvesting and processing sectors. The binding arbitration is intended to resolve price disputes between harvesters and processes, which in the past have delayed fishing....

The Council believes that the crab fisheries in the BSAI require this innovative, comprehensive management approach to adequately recognize and protect the interests of all participants. It recognizes all components of the fishery as a balanced, inextricably linked system, rather than individual, competing components (NPFMC, 2004).

To address these conflicting interests, the Council developed a program that it perceived as appropriately balancing those interests. Given this conflict, one cannot simply look to a general problem statement to assess whether a program is operating as intended. Instead, one can consider whether the outcome of the program is one that was anticipated at the time it was adopted. The examination of the 90/10 A share/B share split and arbitration program that follows adopts this latter approach – and considers whether the effects were anticipated at the time the Council adopted the program. This paper also examines perceived problems in the harvester and processor share allocations and the arbitration system, whether such problems were anticipated.

A description of the arbitration system

The arbitration system serves several important purposes in the program. It coordinates the matching of A share IFQ held by harvesters with IPQ held by processors. For a 5-day period starting when IFQ and IPQ are issued, shares are matched only by mutual agreement of share holders. After that period has expired, shares may be matched either by agreement or by unilateral commitment of the IFQ holder. Throughout, holders of unused IPQ are required to report the amount of unused shares held to holders of unused IFQ (updating that report within 24 hours of any change). Although this share matching process may aid in establishing commitments to deliver and receive A share IFQ landings, the terms of those transactions may be disputed. The arbitration system defines a procedure intended to assist participants in coming to reasonable terms for those deliveries. If the parties are unable to negotiate a settlement, an arbitration procedure may be used to resolve those terms.

The arbitration process begins with the two sectors (harvesters and processors) jointly selecting a “market analyst” who produces a market report, a “formula arbitrator,” who develops a price formula specifying an ex vessel price as a portion of the first wholesale price, and a pool of “contract arbitrators,” who preside over any binding arbitration proceedings. The market report and formula price are required to be released at least 50 days prior to the season opening. The market analyst and formula arbitrator (who may be the same person) generate the market report and formula price, respectively, based on any relevant information, which may include information received from IFQ holders and IPQ holders. Neither the market report nor the formula price has any binding effect. Instead, they are intended to provide baseline information concerning the market and a signal of a reasonable price.

An IFQ holder that is not able to resolve all terms of delivery with a processor to whom it has committed deliveries may unilaterally initiate an arbitration proceeding. The window for initiating arbitration is 10

days long, beginning 5 days after the allocation of IFQ and IPQ.⁶ The starting point for initiating arbitration coincides with the start of the period during which harvesters may unilaterally commit IFQ to a processor. Once initiated, any holder of IFQ that has committed shares to the IPQ holder may join the arbitration proceeding. This ability to join is critical because the system limits each processor to a single arbitration proceeding. A last opportunity to make use of arbitration is available for harvesters that choose not to join a proceeding. After arbitration is completed, any holder of uncommitted IFQ can bind the IPQ holder to the terms of the proceeding by committing deliveries to the IPQ holder. Binding arbitration proceedings are conducted on a “last best offer” basis. Under this system, each party to the proceeding submits a “last best offer”. The role of the arbiter is to select one offer from each of the two competing offers. Since several harvesters may be involved in a single proceeding, in binding arbitration involving two or more harvesters, each harvester may either submit an independent offer or join a collective offer (as part of an Fishery Collective Marketing Act cooperative). The processor submits a single offer. For each harvester offer, the arbiter’s role is to select either that harvester’s offer or the processor’s offer (which applies to all harvesters).

Since the full effects of the program on the timing of fishing and marketing activities were not predictable, the arbitration system included a flexible component, allowing participants to modify the arbitration timeline. This ‘lengthy season’ approach to arbitration allows IFQ and IPQ holders that have committed deliveries to negotiate a modified schedule for arbitration. If the parties are unable to agree on the lengthy season approach, they may arbitrate whether to adopt that approach and the timing of the proceeding. Agreements to use the length season approach to arbitration must be entered prior to the opening of a fishery.

An important aspect of the arbitration system is the flow of information among the parties. To effectively participate in the program, holders of uncommitted IFQ need timely updates on the availability of unused IPQ, the initiation of arbitration proceedings, and the outcome of arbitration proceedings. Equally (or more) important are the limitations on flow of information, which are intended to prevent potential collusive behavior. Allowing this price and share holdings information, which is necessary for IFQ holders to participate in the system, to flow to IPQ holders could enable some IPQ holders to unfairly leverage their position in the limited landings market.

The arbitration program is administered through a series of contracts among share holders and arbitration organizations, which are formed by share holders in the fisheries. These organizations are responsible for establishing the administrative aspects of the arbitration system, including selecting arbitrators, coordinating the dissemination of information concerning uncommitted shares among the participants, ensuring confidentiality of sensitive information, and collecting payments to disburse program costs. All share holders from both sectors are required to join an arbitration organization.⁷ Separate organizations are required for harvest share holders and processing share holders. Holders of harvest shares that are affiliated with holders of processing shares are required to join an arbitration organization for purposes of facilitating share matching and administration. Due to antitrust concerns, these “affiliated harvesters” are not permitted to join an organization that includes unaffiliated harvesters and are not permitted to use a binding arbitration proceeding to settle terms of delivery.

⁶ As originally developed, this period was intended to begin 25 days prior to the season opening and end 15 days prior to the season opening. This timing was found to be incompatible with the TAC announcement and issuance of IFQ and IPQ, which will typically occur approximately 15 days prior to the season opening in the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries. To address this inconsistency, the Council amended the program revising the timing of share matching and initiation of arbitration.

⁷ Holders of catcher processor shares are exempt from the requirement of arbitration organization membership, since they are not subject to the processor landing requirements. In addition, C share holders are exempt from the requirement for the first three years of the program, when the processor landing requirements do not apply to C shares.

Under the regulation, harvest share holders and processing share holders jointly select a pool of arbiters to preside over any binding arbitration proceedings. Once a proceeding is initiated, harvesters that are party to the proceeding select an arbiter from the pool to preside over the specific proceeding.

Perhaps the most important factor for determining price and delivery terms is the arbitration standard. The specific standard is set out twice in the regulations, once for the formula arbitrator (who develops the pre-season, non-binding price formula) and once for contract arbitrators (who decide specific cases, binding participating IFQ and IPQ holders to terms of delivery). The specific standards applicable to the two different arbitrators follow (with substantive differences bolded)⁸:

(2) **The contract with the Formula Arbitrator must specify that:**

(i) The Formula Arbitrator will conduct a single annual fleet-wide analysis of the markets for crab to establish a Non-Binding Price Formula under which a fraction of the weighted average first wholesale prices for crab products from the fishery may be used to set an ex-vessel price; and

(ii) The Non-Binding Price Formula shall:

(A) Be based on the historical distribution of first wholesale revenues between fishermen and processors in the aggregate based on arm's length first wholesale prices and ex-vessel prices, taking into consideration the size of the harvest in each year; and

(B) Establish a price that preserves the historical division of revenues in the fishery while considering the following:

- (1) Current ex-vessel prices, including ex-vessel prices received for crab harvested under Class A, Class B, and CVC IFQ permits;
- (2) Consumer and wholesale product prices for the processing sector and the participants in arbitrations (recognizing the impact of sales to affiliates on wholesale pricing);
- (3) Innovations and developments of the harvesting and processing sectors and the participants in arbitrations (including new product forms);
- (4) Efficiency and productivity of the harvesting and processing sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure);
- (5) Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings);
- (6) The interest of maintaining financially healthy and stable harvesting and processing sectors;
- (7) Safety and expenditures for ensuring adequate safety;
- (8) Timing and location of deliveries; and
- (9) The cost of harvesting and processing less than the full IFQ or IPQ allocation (underages) to avoid penalties for overharvesting IFQ and a mechanism for reasonably accounting for deadloss.

(C) Include identification of various relevant factors such as product form, delivery time, and delivery location.

(D) Consider the "highest arbitrated price" for the fishery from the previous crab fishing season, where the "highest arbitrated price" means the highest arbitrated price for arbitrations of IPQ and Arbitration IFQ which represent a minimum of at least 7 percent of the IPQ resulting from the PQS in that fishery. For purposes of this process, the Formula Arbitrator may aggregate up to three arbitration findings to collectively equal a minimum of 7 percent of the IPQ. When arbitration findings are aggregated with 2 or more entities, the lesser of the arbitrated prices of the arbitrated entities included to attain the 7 percent minimum be considered for the highest arbitrated price. 80 CFR 680.20(g)(2)

(4) Basis for the Arbitration Decision.

The contract with the Contract Arbitrator shall specify that the Contract Arbitrator will be subject to the following provisions when deciding which last best offer to select.

(i) The Contract Arbitrator's decision shall:

⁸ Note that in the regulation, "Arbitration IFQ" refers to Class A IFQ held by harvesters that are not affiliated with a PQS holder. These "Arbitration IFQ" are the only IFQ for which delivery terms may be arbitrated.

- (A) Be based on the historical distribution of first wholesale revenues between fishermen and processors in the aggregate based on arm's length first wholesale prices and ex-vessel prices, taking into consideration the size of the harvest in each year; and
 - (B) Establish a price that preserves the historical division of revenues in the fishery while considering the following:
 - (1) Current ex-vessel prices, including ex-vessel prices received for crab harvested under Class A IFQ, Class B IFQ, and CVC IFQ permits;
 - (2) Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing);
 - (3) Innovations and developments of the harvesting and processing sectors and the participants in the arbitration (including new product forms);
 - (4) Efficiency and productivity of the harvesting and processing sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure);
 - (5) Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings);
 - (6) The interest of maintaining financially healthy and stable harvesting and processing sectors;
 - (7) Safety and expenditures for ensuring adequate safety;
 - (8) Timing and location of deliveries; and
 - (9) The cost of harvesting and processing less than the full IFQ or IPQ allocation (underages) to avoid penalties for overharvesting IFQ and a mechanism for reasonably accounting for deadloss.
 - (C) Consider the Non-Binding Price Formula established in the fishery by the Formula Arbitrator. 80 CFR 680.21(h)(4)**
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As set out, the standard is generally intended to “establish a price that preserves the historical division of revenues in the fishery” while considering several factors. The decision should be based on the historical division of “first wholesale revenues between fishermen and processors in the aggregate based on arm’s length first wholesale prices and ex-vessel prices, taking into consideration the size of the harvest each year.” Within the context of this primary standard, the arbitrator is directed to take into account the listed factors.

The differences between the standards applicable to the formula arbitrator’s non-binding formula and the contract arbitrator’s last best offer finding are not extensive and do not appear to substantively change the general approach to be applied. The formula arbitrator is also required to identify relevant factors, including product form, delivery time, and location. The inclusion of this direction suggests that the arbitrator has the latitude to distinguish among product forms, delivery locations, and delivery times in the pricing formula, if appropriate. The Formula Arbitrator is also directed to consider the “highest arbitrated price” from the previous season. To ensure that the price is a generally applicable price, the price must apply to at least 7 percent of the IPQ in the fishery. The Contract Arbitrator is required to consider the non-binding price formula produced by the Formula Arbitrator in deciding a contract in a last best offer proceeding. These two provisions seem to create a feedback between the non-binding arbitration of the Formula Arbitrator and the binding arbitration of the Contract Arbitrator. The nature of that feedback is explored later in this paper.

Both arbitrators are directed to consider any relevant information presented by the parties. In this context, the standard appears to provide the arbitrators with direction to establish a price that preserves the historical division of first wholesale revenues, at the same time allowing latitude to consider other relevant information, including information relevant to the listed considerations.

Application of the 90/10 A share/B share allocations and the arbitration system

To date, one full year and one partial year of fishing have occurred under the crab rationalization program. This section briefly describes the operation of the arbitration system during that time. Prices for red king crab, *C. opilio* crab, and golden king crab products have been considerably lower than in recent

years. During this time period, the relatively poor market for crab has stressed all participants in the fisheries, contributing to contentious price negotiations and lowered returns to all participants. In addition, historically high fuel prices have increased the challenge by driving up operating costs. The Bering Sea *C. opilio* fishery has faced a few specific challenges, including heavy ice in January 2006 that disrupted fishing and deliveries of landings to the Pribilofs and a fire on a processing platform in January of 2007 that disabled that facility for approximately one month. Both of these events have contributed to contention between the fleet and processors.

Table 1 and Table 2 show the allocations of A shares, B shares, and C shares (IFQ) in the different fisheries in the first two years of the program, respectively. Although this paper only concerns catcher vessel issues, catcher processor allocations are shown for completeness. Since A shares are allocated for a large majority of the TAC, this paper begins with a discussion of the system of arbitration that guides both delivery negotiations and price formation for landings of A shares. After the discussion of A share price settlements, the paper discusses B share landings and distributional issues related to the use of those shares. Where relevant, the interactive effects of the two different share types on the distribution of benefits between sectors are discussed. Separation of the discussion of price setting and delivery terms for A shares from the discussion with respect to B shares is justified by the statutory limitation on processors using IPQ to leverage B share deliveries. That specific provision states:

If the Secretary determines that a processor has leveraged its Individual Processing Quota shares to acquire a harvester['s open-delivery 'B shares', the processor's Individual Processor Quota shares shall be forfeited.

Given this limitation, negotiations of the terms of delivery are likely to be separated to avoid potential enforcement of the prohibition on using IPQ to negotiate B shares. This separation of negotiations allows for the consideration of the negotiation and settlement of delivery terms for the two share types separately. The section concludes with some observations and discussion of issues from the first two years of the program.

Table 1. IFQ allocation by share type (2005-2006).

Fishery	Catcher vessel			Catcher processor		Total
	Owner		Captain/ crew	Owner	Captain/ crew	
	Class A	Class B				
Bristol Bay red king crab	13,776,637	1,513,451	480,493	729,366	17,380	16,517,327
Bering Sea <i>C. opilio</i>	26,545,558	2,948,640	966,892	2,967,441	59,366	33,487,897
Western Bering Sea <i>C. bairdi</i>	1,186,924	131,870	39,956	95,628	3,608	1,457,986
Eastern Aleutian Islands golden king crab	2,243,081	249,230	80,996	126,663	0	2,699,970
Western Aleutian Islands golden king crab	1,140,787	126,752	41,915	1,089,563	30,989	2,430,006

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

Table 2. IFQ allocation by share type (2006-2007).

Fishery	Catcher vessel			Catcher processor		Total
	Owner		Captain/ crew	Owner	Captain/ crew	
	Class A	Class B				
Bristol Bay red king crab	11,647,090	1,294,110	402,768	615,655	14,669	13,974,292
Bering Sea <i>C. opilio</i>	26,121,324	2,902,364	929,338	2,898,453	57,982	32,909,461
Eastern Bering Sea <i>C. bairdi</i>	1,374,311	152,697	46,358	109,989	4,146	1,687,501
Western Bering Sea <i>C. bairdi</i>	801,857	89,097	27,047	64,175	2,419	984,595
Eastern Aleutian Islands golden king crab	2,245,212	249,468	80,075	125,227	0	2,699,982
Western Aleutian Islands golden king crab	1,140,787	126,752	41,914	1,089,563	30,989	2,430,005

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2006-2007.

Arbitration Organizations

Certain aspects of the arbitration system operate regardless of whether participants in the fisheries use the system to directly resolve terms of delivery. All share holders are required to join an arbitration organization. These organizations are parties to the contracts that define and govern the share matching and arbitration system. In the first year of the program, QS and PQS allocations were made in the early summer. Anticipating this timing of the share issuance, NOAA Fisheries set a July 1 deadline by which all share holders were required to be members of an arbitration organization. Since QS and PQS allocations are fixed after the first year, the annual deadline for arbitration organization membership after the first year is May 1. In the first year of the program, two unaffiliated organizations formed. One organization concentrated on the Aleutian Islands golden king crab – the other organization dominated the Bristol Bay red king crab, Bering Sea *C. opilio* and the Western Bering Sea *C. bairdi* fisheries. In the second year of the program, all harvesters have joined a single organization. In the first two years, a single organization formed for processors and a single organization formed for processor-affiliated harvesters. Since the arbitration organizations serve primarily an administrative function, share holders are able to achieve efficiencies through joining a common organization without compromising their competitive position or operational aspects of their business.

The Market Report and Formula Price

Annually, a market report and pricing formula are required to be generated for each fishery. The market analyst and formula arbitrator who prepare these documents are selected by mutual agreement of arbitration organizations representing at least 50 percent of the non-affiliated QS holders and at least 50 percent of the PQS holders in a fishery. The report and formula for a fishery are required to be prepared at least 50 days prior to the opening of the season.

In the first two years of the program, the person (or team) that prepared the market report for a fishery also prepared the non-binding price formula. Participants in the fishery generally believe that using a single source for both of these reports has reduced costs – both direct costs of the report and time costs of providing information to the analysts. In the first year of the program the market report and price formula for the Aleutian Island golden king crab fisheries were prepared by one team of analysts, while the market report and price formula for the Bristol Bay red king crab, Bering Sea *C. opilio* and the Bering Sea *C. bairdi* fisheries were prepared by another analyst. In the second year, a single analyst prepared all market reports and price formulas.

In the first year of the program, the relatively late issuance of QS and PQS and the need for participants to organize into arbitration organizations and select an analyst contributed to the market reports and price formulas for the various fisheries being prepared on a very short timeline. In the second year of the program, participants and analysts were able to follow the regulatory schedule for developing these reports. In one critical sense, the market report and price formula have met the expectations of the Council – these reports have generally served as the starting point for price negotiations (see NPFMC, 2004). While meeting this purpose, the formula price has caused some concern among processors who believe that the formula has restricted flexibility in pricing, effectively driving all participants toward a single price.

The issuance of these reports is slightly complicated by the uncertainty concerning whether reports are required for all fisheries (see 50 CFR 680.20(f)(1)). Under the current regulation, no provision is made to exempt fisheries unlikely to open from the requirement for a market report and non-binding formula. Development of a process to omit this requirement for fisheries unlikely to open would simplify administration of the program for participants.

An additional issue concerns the timing of the market report for the Aleutian Islands golden king crab fisheries. That report is required to be finalized 50 days prior the season opening (50 CFR 680.20(f)(4)(i)). Since the golden king crab fisheries open in mid-August, the reports are due in late June. At this time, data from the prior season are typically not fully compiled. A slight delay in the delivery of this report could accommodate the inclusion of more complete information from the previous season.

The market report

The market report is intended to provide participants with a transparent view of market conditions to form the basis for negotiations. The scope of the analysis should include ex vessel prices, first wholesale prices, as well as downstream prices in consumer markets. Although crab price volatility is recognized as preventing this preseason analysis from being a good tool for setting a single, dollar ex vessel price for landings, it was thought that a unbiased review of markets could assist participants in negotiating prices and settling delivery terms (RIR, p. 400). The report is based on both publicly available market information and information provided to the analyst by participants in the fisheries. Processors are required to communicate with the analyst independently. Harvesters that are unaffiliated with processors can communicate with the analyst collectively, only as a part of a Fishermen's Collective Marketing Act (FCMA) cooperative. In the first two years of the program, many harvester share holders participated collectively in this process using an FCMA cooperative, which included members of several of the harvest cooperatives formed under the program.⁹ This FCMA cooperative (known as the "Inter-Cooperative Exchange" or "ICE") represents holders of approximately 70 percent of the unaffiliated harvesters in the fisheries.

Some participants have questioned the utility of the market report. The market report is required to be released at least 50 days prior to the season opening. Furthermore, any price information contained in the report is required to be at least 3 months old at the time of release. Because of the timing of the report and the limitations on information it may contain, most participants in the fisheries believe that the information in the reports is stale by the time it would be useful for negotiations. The usefulness of the report is certainly questionable in the case of the Bering Sea *C. opilio* fishery. Although the fishery opens in October, simultaneously with the opening of the Bristol Bay red king crab fishery, participants have elected not to fish until after January 1st, when the fishery was traditionally prosecuted under the License Limitation Program (LLP). By the time of fishing begins, the market report itself is four months old, while the information it contains is approximately seven months old.

If the Council perceives a staleness problem with the market reports, that problem could be addressed in a few different ways. One option is to simply dispose of the market report requirement through an amendment to the program. Alternatively (and likely more simply), the arbitration organizations could choose to minimize the market report requirement in the contract with the market analyst/formula arbitrator. To date, in each fishery, the same person (or team) has prepared the market report and price formula. Through the terms of the contract, the organizations could minimally satisfy the requirements for a market report contained in the regulations at minimal cost (see 80 CFR 680.20(f)), since the person preparing the report would also be preparing the price formula report. Dispensing with the market report requirement could be appropriate, if the Council perceives that participants are able to gather adequate market information through other means and a common, unbiased source of market information is not useful for negotiations. The answer to these questions is not obvious. Processors, in the business of selling

⁹ Under the rationalization program, IFQ holders may form "harvest cooperatives" that serve the exclusive purpose of coordinating catch of the allocations of their members. Under antitrust law, harvesters that intended to negotiate landings prices collectively must comply with the requirements of the FCMA. Because of their different purposes, the limitations on and requirements for forming cooperatives under the FCMA differ from those of the rationalization program. As a result, IFQ holders in different harvest cooperatives have been able to organize under the FCMA to collectively negotiate prices by meeting the requirements of the FCMA.

into crab markets, should have reasonable access to information on market conditions, as do the many harvesters that have developed the means to access market information through the Inter-Cooperative Exchange. Non-members of that cooperative, however, may have less (or more costly access to that information). In addition, the contentious price negotiations in the crab fisheries in recent years, suggest that an unbiased source of market information (even though not timely) may be beneficial as a reasonable starting point for price negotiations.

If the Council believes that the market report provides useful information to participants, it could amend the market report requirements to improve the timeliness information in the report. This could be accomplished by changing the nature of the information contained in the report. Currently, reports are limited to historical information to prevent the distribution of market data that could be used in an anticompetitive manner (see Arnold & Porter, 21-22). If the report utilizes only publicly available information, the report would pose no such risk. Two different approaches could be used to address this shortcoming. One would be to allow a timely supplement to the market report. Allowing this supplement would likely require a regulation change, since the current regulation prohibits interim or additional reports or supplements (see 80 CFR 680.20(f)(2)(vii) and (viii)). The supplement could be authorized, provided that only publicly available information is permitted to be contained the report. The use of a supplement would allow participants to be updated on information midseason, as would likely be necessary to receive pertinent and timely information concerning market conditions for the Bering Sea *C. opilio* fishery. Alternatively, the timeline for the report could be modified, so that the report is issued at a later time. This second approach, however, has pitfalls. Postponing the report in its entirety could increase the costs, since to date the report has been integrated with the formula price report. Combining the reports in a single package also provides a comprehensive analysis of market conditions and the price that would be generated by those conditions under the arbitration standard. This integrated package is likely of greater use to participants than two separate reports. One way to maintain the integrated package would be to delay the price formula report. Delaying that formula, however, could limit its usefulness in negotiations, which already are subject to time pressures under the schedule for share matching and initiation of arbitration. If the Council believes that this problem should be addressed, its choice of solutions should be based on preferences of the participants, who derive any benefit of the market report in their negotiations.

Another approach to providing market information to participants, suggested by the harvester arbitration organization, would be to simply make available up to date, publicly available market information to participants in both sectors from a common source. The source would not analyze markets or make any projections, but would only provide information on current market conditions. The specific sources from which information would be drawn could be agreed by the arbitration organizations.

In general, the market reports in the various fisheries have identified market volatility as a major impediment to forecasting prices. As a consequence, the reports have chosen to identify factors most likely to influence prices and gauge the possible effects of those factors in the coming year. The market report for red king crab in the first year of the program identified Japanese demand, U.S. demand, and Russian production as the strongest influences on price for red king crab. The report predicted a slight decline in the red king crab market from previous year based on a predicted slight increase in Russian supply. The second year report noted that the supply increased substantially, pushing prices down substantially. The second year's report identified the continuation of this supply as a major factor putting downward pressure on prices, suggesting further price drops. Since the report came out, a drop in Russian production has buoyed prices of red king crab.

In the first *C. opilio* season, the market report noted volatility in *C. opilio* (snow crab) markets in recent years. The report predicted declining prices due to poor demand in both the Japanese and U.S. markets. The decline was greater than predicted in the report, which was based on information that was 6 months

old at the time the fishery was prosecuted. The second year's market report predicted a rebound in prices stimulated in part by demand from buyers drawn to the snow crab market by the low prices in the preceding year. To date, this projection seems to be accurate. The market report for the significantly smaller *C. bairdi* fishery is integrated into the market report for the *C. opilio* fishery. That report suggests that *C. bairdi* will continue to draw its historic premium over *C. opilio*.

In the first year of the program, the Aleutian Islands golden king crab market report predicted prices in that fishery using a regression based on published prices of red king crab products. Based on the analysis, the report predicted weakening prices for golden king crab. The second year market report examined the influence of several factors on golden king crab prices, most importantly small sized red king crab imports, in concluding that the fishery would again experience weakening prices. To date, both reports appear to have proven generally correct. In the first year of the program market prices were weak, in large part due to an influx of red king crab from Russia. In the beginning of the second year of the program, prices continued downward, but appear to be recovering recently.

The price formula

The price formula is likely the more important of the preseason reports, since this formula is intended to inform negotiations and the binding arbitration process. Many participants view the formula as the starting point for negotiations and also the driver of delivery terms for A shares in the fisheries. The different reports, however, reveal some differences in interpretation of the arbitration standard.

In the first year of the program, the price formula report for Aleutian Islands golden king crab recommended a staged price setting process. Under this approach, harvesters would receive an advance, guaranteed minimum price at the time of landing based on prevailing market prices at the time of the report. At the end of the season, an adjustment would be made based on average first wholesale prices for the year. This formulation is intended to put market risk on processors, who were said to be more capable of absorbing that risk than harvesters because of the relative scales of their operations. The starting price is intended to present a risk of loss to processors only in years of very poor market conditions. The formula generally applied the average historic division of first wholesale revenues based on price information from 1990 to 2004.¹⁰ The final formula would provide harvesters with 81.5 percent of the first wholesale price per round pound. The analysts assumed a constant recovery rate of 60 percent to reach this formulation. Since this results in a linear formulation, the ex vessel price per round pound is effectively 48.9 percent of the first wholesale price per processed pound. In the second year of the program, the non-binding price formula relied on data from 1985 to 2005, relating average ex vessel prices to average first wholesale processed product prices. The analyst surmised that the portion of the first wholesale value paid to fishermen varies depending on the market price. Considering the third of historic years with the lowest ex vessel prices and the third of historic years of low first wholesale prices, the analyst concluded that an ex vessel price between 44.4 percent and 46.6 percentage of the first wholesale price preserves the historic division of first wholesale revenues. The analyst included a discussion of all relevant criteria under the standard (e.g., efficiency, financial stability), but chose not to adjust the formula in response to those considerations.

In the first year of the program, the non-binding price formula for both Bristol Bay red king crab and Bering Sea *C. opilio* noted that the ex vessel price as a percentage of first wholesale price has varied over time and has been somewhat unpredictable. The analyst, however, noted that the movement of the percentage year to year was related to the direction of the market. The analyst used the preceding year's relationship, applying an adjustment based on the direction of the market. Using this relationship

¹⁰ The analysis suggests that the standard is intended to require the formula to preserve the historic division of profits between the sectors. The analysts chose to apply the historic division of first wholesale revenues primarily because of data shortfalls.

(together with a minor adjustment for high fuel costs), the analyst concluded that the ex vessel price should be 50.25 percent of the first wholesale price for Bristol Bay red king crab and 41.03 percent of the first wholesale price for Bering Sea *C. opilio*. In the Bering Sea *C. bairdi* fishery, the analyst cited the closure of the fishery in recent years as a cause of considerable uncertainty concerning the market and the appropriate formula. To overcome this uncertainty, the formula was based on the *C. opilio* formula, with adjustments that could be applied in the event of unexpectedly low first wholesale prices or lower than expected price premiums relative to *C. opilio*. The baseline price formula concluded that ex vessel prices should be 40.56 percent of the first wholesale price.

In the second year of the program (with considerably more time available to develop the formula), the analyst focused on demonstrating a relationship between the historic average first wholesale prices and average ex vessel prices. In the Bristol Bay red king crab fishery, a simple linear regression was adopted with ex vessel price as a function of first wholesale price. Based on this regression, with first wholesale prices ranging from \$5.10 to \$10.00, ex vessel prices would range from approximately 52.5 percent to 51.25 percent of the first wholesale price.¹¹

In the *C. opilio* fishery, similar formulas were developed. However, separate formulas were developed for North region deliveries, South region deliveries, and all deliveries combined. The basis for the different regional estimations is controversial within industry, as there is debate over whether prices have historically differed across the two regions. The generated ex vessel prices in the North differ from those in the South by as much as \$0.09. At relatively low ex vessel prices, prices in the North tend to be lower than South prices; at higher ex vessel prices, prices in the North tend to be higher than South prices. This pattern is consistent with the observation in the report that TACs could affect any price differential, as prices in the North may be lower relative to South prices in low TAC years (when the operational advantage of delivering to the North is lower). As expected, the price generated by combining landings from both regions falls between the two region-based estimates, but is typically closer to the North estimate.¹² Under the various formulations, applying a range of reasonable first wholesale prices, ex vessel prices range from approximately 33 percent to 46 percent of the first wholesale price. An additional consideration, in the price formulation was the arbitrated prices from the preceding season. Under the arbitration standard, the arbitrator is required to consider the highest arbitrated price that applies to greater than 7 percent of the fleet. Since the harvesters prevailed in the arbitration, the arbitrated price increased the ex vessel price generated by the price formula. The exact methodology by which the arbitrated price was considered is unclear from the report. The *C. bairdi* report also relied on a regression to determine the historic relationship between first wholesale prices and ex vessel prices. Applying the regression, ex vessel prices range from approximately 45 percent to 48 percent of the first wholesale price.¹³

Table 4, and Table 5 show the first wholesale prices and ex vessel prices from the Bristol Bay red king crab, Bering Sea *C. opilio*, and the Aleutian Islands golden king crab fisheries, respectively, from 1997 to 2005. Ex vessel prices are reported from both Commercial Operator's Annual Reports (COAR) and fish tickets. Fish tickets typically show payments at the time of landing. COAR data should include any post-landing bonuses. In the COAR database, the location of the processor that purchased the fish is recorded by ADFG regulatory area, but harvest location is not recorded. Crab harvested in one regulatory area

¹¹ The specific formulation in the red king crab fishery concluded that ex vessel price should equal 0.536 times the first wholesale price less 0.12.

¹² The North *C. opilio* formula is that the ex vessel price should equal 0.5391 times the first wholesale price less 0.4159; the South *C. opilio* formula is that the ex vessel price should equal 0.4889 times the first wholesale price less 0.2311; and the combined *C. opilio* formula is that the ex vessel price should equal 0.541 times the first wholesale price less 0.416.

¹³ The *C. bairdi* formula is that the ex vessel price should equal 0.503 times the first wholesale price less 0.137.

may be sold to a processor in another area. For most crab fisheries, this means that it is not possible to calculate wholesale and ex-vessel prices at the fishery level. For example, crab harvested in Bristol Bay may be delivered to a processor in Kodiak. Prices are calculated including all observations in the COAR database. For golden king crab and red king crab, this approach includes deliveries from the Norton Sound red king crab fishery and relatively small fisheries in southeast Alaska. The Bering Sea *C. opilio* fishery is the only *C. opilio* fishery in the state, so those data are solely from the Bering Sea fishery. The tables also show the ex vessel price as a percentage of first wholesale price generated by the formula arbitrator. The percentages calculated in these tables differ from those of the formula arbitrator in only one instance in the Aleutian Islands golden king crab fishery in 2000. Given that the percentage in that year in the formula arbitrator's report differs substantially from the percentage in other years, the percentage should be reviewed in the next report. The tables examine only first wholesale prices for shellfish sections, the methodology followed by the formula arbitrator. Depending on the preferences of participants in the program and the availability of information, prices for additional products could be incorporated into a future analysis. Adding other products to the estimates would likely complicate calculations because of differences in recovery rates.

Table 3. First wholesale prices and ex vessel prices in the Bristol Bay red king crab fishery (1997-2005).

Fishery	Season	GHL/TAC ^a	First wholesale price ^b	COAR ex vessel price ^c	COAR ex vessel percentage of first wholesale price	Fish ticket ex vessel price ^d	Fish ticket ex vessel percentage of first wholesale price	Percentage from formula arbitrator's report
Bristol Bay Red King Crab	1997	7.0	6.18	3.27	53.0%	3.26	52.7%	53.1%
	1998	15.8	5.52	2.63	47.7%	2.61	47.3%	47.6%
	1999	10.1	11.25	6.25	55.6%	6.26	55.7%	55.7%
	2000	7.7	9.11	4.74	52.0%	4.81	52.8%	52.7%
	2001	6.6	8.93	4.83	54.0%	4.77	53.4%	55.1%
	2002	8.6	11.58	6.21	54.0%	6.11	52.8%	53.5%
	2003	14.5	9.82	5.14	52.0%	5.04	51.3%	52.5%
	2004	14.3	9.25	4.69	50.7%	4.67	50.5%	51.4%
	2005	16.5	8.52	4.50	53.0%	4.39	51.5%	53.3%

^a Guideline Harvest Level (Total Allowable Catch from 2005 forward) in millions of pounds for Bristol Bay fishery only.

^b Source: ADFG Commercial Operator's Annual Reports. Wholesale price is reported for shellfish sections and includes all Red King Crab fisheries because COAR reports do not indicate harvest location.

^c Source: ADFG Commercial Operator's Annual Reports. Prices are for all RKC fisheries combined because COAR reports do not indicate harvest location.

^d Source: ADFG Fish Tickets. Prices do not include end of season bonuses or adjustments.

Table 4. First wholesale prices and ex vessel prices in the Bering Sea *C. opilio* fishery (1997-2005).

Fishery	Season	GHL/TAC ^a	First wholesale price ^b	COAR ex vessel price ^c	COAR ex vessel percentage of first wholesale price	Fish ticket ex vessel price ^d	Fish ticket ex vessel percentage of first wholesale price	Percentage from formula arbitrator's report
Bering Sea <i>C. opilio</i>	1997	117.0	2.13	0.79	37.2%	0.79	36.9%	37.1%
	1998	225.9	2.03	0.57	27.9%	0.56	27.7%	28.1%
	1999	186.2	2.92	0.98	33.7%	0.88	30.2%	33.6%
	2000	26.4	4.16	1.85	44.5%	1.85	44.4%	44.5%
	2001	25.3	3.73	1.55	41.6%	1.52	40.9%	41.3%
	2002	28.5	3.58	1.39	38.9%	1.37	38.3%	38.6%
	2003	23.7	4.40	1.85	42.0%	1.81	41.2%	42.0%
	2004	19.3	4.79	2.07	43.1%	2.04	42.6%	43.2%
	2005	19.4	3.85	1.81	47.0%	1.79	46.6%	47.0%

^a Guideline Harvest Level (Total Allowable Catch from 2005 forward) in millions of pounds.

^b Source: ADFG Commercial Operator's Annual Reports. Wholesale price is reported for shellfish sections.

^c Source: ADFG Commercial Operator's Annual Reports.

^d Source: ADFG Fish Tickets. Prices do not include end of season bonuses or adjustments.

Table 5. First wholesale prices and ex vessel prices in the Aleutian Islands golden king crab fisheries (1997-2005).

Fishery	Season	GHL/TAC ^a	First wholesale price ^b	COAR ex vessel price ^c	COAR ex vessel percentage of first wholesale price	Fish ticket ex vessel price ^d	Fish ticket ex vessel percentage of first wholesale price	Percentage from formula arbitrator's report
Al Golden King Crab	1997	5.9	4.79	2.26	47.1%	2.22	46.2%	46.9%
	1998	5.7	4.24	1.97	46.5%	1.90	44.8%	45.0%
	1999	5.7	6.89	3.15	45.8%	3.19	46.3%	46.6%
	2000	5.7	7.20 ^e	3.31	46.0%	3.29	45.6%	58.9%
	2001	5.7	6.95	3.37	48.4%	3.22	46.3%	48.1%
	2002	5.7	7.58	3.46	45.6%	3.38	44.6%	46.2%
	2003	5.7	7.89	3.62	45.9%	3.45	43.7%	45.7%
	2004	5.7	6.02	3.15	52.3%	3.14	52.1%	52.2%
	2005	5.7	6.00	2.89	48.2%	2.42	40.3%	46.4%

^a Guideline Harvest Level (Total Allowable Catch from 2005 forward) in millions of pounds for E. and W. Aleutian Islands.

^b Source: ADFG Commercial Operator's Annual Reports. Wholesale price is reported for shellfish sections and includes all Golden King Crab fisheries, because COAR Reports do not indicate harvest location.

^c Source: ADFG Commercial Operator's Annual Reports. Includes all GKC fisheries, because COAR reports do not indicate harvest location.

^d Source: ADFG Fish Tickets. Prices do not include end of season bonuses or adjustments and are calculated for the GKC season (e.g., 1997-1998) rather than by calendar year.

^e Note discrepancy with price in Sackton (2006).

Table 6 and Table 7 show the first wholesale prices and ex vessel prices in the Bering Sea *C. opilio* Northern and Southern regions, respectively, from 1997 to 2005. The tables use only COAR data, as fish ticket data were not available by region to compute these estimates. The data show some variation across the two regions, with Southern region prices slightly higher in some years. Whether these price variations are significant (an worthy of differentiating prices in the formula) is a matter that could be considered by the arbitrator.

Table 6. First wholesale prices and ex vessel prices in the Northern region of the Bering Sea *C. opilio* fishery (1997-2005).

Fishery	Season	GHL/TAC ^a	First wholesale price ^b	Ex vessel price ^c	COAR ex vessel percentage of first wholesale price	Percentage from formula arbitrator's report
Bering Sea <i>C. opilio</i>	1997	117.0	2.24	0.78	34.8%	34.8%
	1998	225.9	2.01	0.56	27.9%	27.9%
Northern ^d Region	1999	186.2	2.94	0.97	33.1%	33.0%
	2000	26.4	4.29	1.85	43.0%	43.1%
	2001	25.3	3.68	1.55	42.0%	42.1%
	2002	28.5	3.79	1.40	37.0%	36.9%
	2003	23.7	4.48	1.84	41.1%	41.1%
	2004	19.3	4.84	2.05	42.5%	42.4%
	2005	19.4	3.85	1.81	47.0%	47.0%

^a Guideline Harvest Level (Total Allowable Catch from 2005 forward) in millions of pounds.

^b Source: ADFG Commercial Operator's Annual Reports. Wholesale price is reported for shellfish sections.

^c Source: ADFG Commercial Operator's Annual Reports.

^d For purposes of price calculations, Northern District includes COAR processor areas Q, T, and W (Pribilof Islands, St. Matthew's Island, Bristol Bay, Kuskokwim).

Table 7. First wholesale prices and ex vessel prices in the Southern region of the Bering Sea *C. opilio* fishery (1997-2005).

Fishery	Season	GHL/TAC ^a	First wholesale price ^b	Ex vessel price ^c	COAR ex vessel percentage of first wholesale price	Percentage from formula arbitrator's report
Bering Sea	1997	117.0	2.11	0.82	38.7%	38.9%
	1998	225.9	2.04	0.57	28.1%	27.9%
Southern ^d Region	1999	186.2	2.89	1.00	34.7%	34.6%
	2000	26.4	4.10	1.86	45.3%	45.4%
	2001	25.3	3.75	1.54	41.1%	41.1%
	2002	28.5	3.47	1.38	39.9%	39.8%
	2003	23.7	4.36	1.85	42.5%	42.4%
	2004	19.3	4.77	2.07	43.5%	43.4%
	2005	19.4	3.85	1.81	47.0%	47.0%

^a Guideline Harvest Level (Total Allowable Catch from 2005 forward) in millions of pounds.

^b Source: ADFG Commercial Operator's Annual Reports. Wholesale price is reported for shellfish sections.

^c Source: ADFG Commercial Operator's Annual Reports.

^d For purposes of price calculations, Southern District includes COAR processor areas E, F, H, K, L, M, and O (Gulf of Alaska from Prince William Sound west).

Application of the arbitration standard in development of the price formula¹⁴

Some confusion appears to have arisen in the formula arbitrators concerning interpretation of the arbitration standard. In the first year of the program, the formula arbitrators for the Aleutian Islands golden king crab fishery interpreted the standard as requiring the development of a price that preserves the historic division of profits in the fishery.¹⁵ The formula arbitrator for all fisheries in the second year of the program interpreted the standard as requiring the development of a price that preserves the historic division of first wholesale revenues in the fishery (see Sackton, 2006b and Sackton, 2006c).

The arbitration standard applicable to the development of the price formula has four general components to it. First, the arbitrator is requested to establish a price that preserves the historic division of first wholesale revenues between harvesters and processors. Second, in developing this price (which preserves the division of revenues) the arbitrator should consider several factors, including current ex vessel, consumer, and wholesale prices, innovations and developments, efficiency and productivity, quality, and financial health and stability. Third, the arbitrator is required to identify factors relevant to price determination, including delivery timing and location. Although these factors are required to be identified under this component, the arbitrator is not required to consider these factors in setting the price except to the extent required by the first component of the standard. Fourth, the arbitrator is required to consider the “highest arbitrated price” from the previous season. Given the variety of competing considerations that an

¹⁴ As noted above, the standard for the formula arbitrator and contract arbitrator differ in only that each is required to consider the actions of the other. Given this limited difference, much of the discussion of the application of the standard by the formula arbitrator also applies to the application of the standard by the contract arbitrator.

¹⁵ The report states that the requirement that the formula that preserve the historical division of revenues in the fishery suggests a “historic division of revenues standard” but raises concern that the requirement to “consider” efficiency and productivity in harvesting and processing and to “consider” the interest of maintaining financially healthy and stable harvesting and processing sectors” implies that costs and profitability should be a consideration. Based on this consideration, the report concludes that the intent is to preserve “historic profit shares”. Data shortfalls, however, led to relying on a historic division of revenues standard (see NEI, p. 35).

arbitrator is required to incorporate into his formulation, it is not surprising that some level of confusion has arisen in the interpretation and application of the standard.

Analyzing the structure of the standard and revisiting the record from its development sheds some light on the intended interpretation of the standard. The standard directs the arbitrator to establish a price that preserves the historic division of revenues while considering several factors. Under such a structure, the factors to be considered seem subordinate to the division of revenues. The Council motion supports this interpretation, in that it provides that “the primary role of the arbitrator is to determine a price that preserves the historic division of first wholesale revenues while considering relevant factors”, including those enumerated in the regulation (NPFMC, June 2004).

A review of the record from development of the standard supports interpreting the historic division of revenues as predominant relative to the listed factors. At the time the Council chose the standard, it also considered a standard that would allow an arbitrator to identify a price based on all relevant factors, including historic ex vessel prices and division of first wholesale revenues. The Council instead identified the primary role of the arbitrator as determining a price that preserves the historic division of revenues in the fishery (see options in NMFS/NPFMC, 2004b). The primacy of the historic division of first wholesale revenues is also suggested by the EIS, which states that:

Assuming no change in the total benefits derived from the fishery, this standard would preserve the historic distribution of benefits for A share landings (NPFMC/NMFS, (2004a) at 4-162).

The EIS also suggests that, under the standard, improvements in returns from the fishery should be shared according to the contribution to those changes:

If processed product revenues are improved through product improvements or developments (capturing greater rents), both sectors could share those additional rents. The arbitration standard would likely provide for the sharing of these revenues between the sectors with the division influenced by the contribution of the parties to the product developments and improvements (NPFMC/NMFS, (2004a) at 4-162).

The report of the committee that developed the arbitration program also supports this conclusion. That report states that the abstract and complicated nature of determining a competitive price or a division of rents would be extremely challenging. Instead, the committee supported the preferred standard, which would preserve the historic division of revenues, while considering other relevant factors. The report states:

[The preferred standard] provides additional definition by directing the arbitrator to decide a price that maintains the historical division of revenues in the fishery, while considering other relevant factors. These additional factors would include product developments and efficiency gains, the benefits of which should generally be distributed to each sector based on the contribution of the sector to those benefits. The committee favors [the preferred standard] because of the additional guidance the historical division of revenues provides to the arbitrator. Retaining the historical division of revenues is thought to be a fair method of preserving the balance of interests of the two sectors in the fisheries (Workgroup on Binding Arbitration, 2002a).

The committee report suggests that adjustments from the price that preserves the historic division of revenues would be made to allow the different sectors to receive the benefit of their respective contributions to improvements in the fishery. So, under the standard, harvesters (or processors) that

modify their behavior to allow for product improvements could be compensated for their contribution to product improvements. This interpretation of the standard suggests that future changes in the fishery cannot be predicted, but that the arbitrator could be justified in adjusting the price from the historic division of revenues on equity grounds under some circumstances. Under this approach, an arbitrator would establish a price that would preserve the historic division of revenues, adjusting the price to accommodate changes in the fishery and its production that arise after implementation of the program.¹⁶

Assuming that one accepts that the standard is generally intended to establish a price that preserves the historic division of revenues in the fisheries, one must still determine the years of history to consider in applying that standard. The workgroup generally agreed that the years 1994-2002 were representative years that should be used for applying the standard for the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries. The Council took no action to identify historical years. Some justification could be advanced for expanding the years to be considered beyond those suggested by the committee. For example, the Bristol Bay fishery was closed in 1994 and 1995. Since the standard is intended to preserve pricing relationships at levels observed prior to the implementation of the program, prices subsequent to implementation of the program should not be considered for purposes of determining the historic division of revenues.¹⁷

If the arbitrator is to establish a price that preserves the historic division of first wholesale revenues, the question arises concerning the implications of other relevant factors (including those listed in the standard). First, as suggested by the analysis and committee report referenced above, factors that change under the rationalization program could be reflected in the arbitrated price. Second, in the first clause of the standard, the arbitrator is directed to consider the size of the annual harvest in determining the historic division of revenues. Third, the committee minutes suggested without reaching conclusion that ex vessel prices may have varied by port (Workgroup on Binding Arbitration (2002b)). The analysis of the standard suggests that these three factors plus others could influence the historic division of revenues:

The division of revenues is likely to be sensitive to the production levels of specific products, with harvesters receiving a greater share of revenues for some products than others. Market changes are also likely to have influence[d] the share of revenues. For example, harvesters may have received a different share of the revenues in years of high process than low prices. In addition, the revenue share received by harvesters is also likely to have sensitive to changes in total harvest. Location[s] of landings are also likely to influence the division of revenues. Prices for landings in different communities have historically varied. The arbitrator will need to accommodate these variations in applying the arbitration standard. (NPFMC/NMFS, (2004b) at 385).

This suggests the identified factors could be considered in assessing historical prices under the standard. For example, the arbitrator could consider whether the division of revenues varied with TACs in a fishery and incorporate any observed variation into the formula. If such variation occurred, its incorporation into the formula would be necessary to preserve the relative positions of the two sectors as intended by the formula. Similarly, variations across landing locations could be assessed by the arbitrator and incorporated in the formula, if deemed necessary to preserve the historic division of revenues.

¹⁶ To apply a division of revenues standard requires one or more sources of revenue data. Both the analysis and the arbitration workgroup expressed concern over the adequacy of existing data sources and the need to consider any relevant, verifiable price data, including data from public sources and data presented by the parties (see, Workgroup on Binding Arbitration (2002b) and NPFMC/NMFS (2004b) at 386).

¹⁷ It should be noted that price information for the period subsequent to the implementation of the program may be relevant, but not for the primary purpose of determining the historic division of revenues.

Application of the last component to be considered by the arbitrator – the “highest arbitrated price” from the previous season – also requires some interpretation. This “highest arbitrated price” will have been derived from binding arbitration proceeding between a specific harvester (or group of harvesters) and a specific processor in the previous season. The arbitrated price will likely depend on several factors, including not only the historic division of revenues, but also the specific circumstances and terms of delivery. As such, the price should not necessarily be viewed as a reflection of the overall conditions in the fishery and markets. This limitation is evident in the evolution of this provision. As first proposed, the provision would have applied the highest arbitrated price to all arbitrated deliveries in a fishery. Although never agreed upon, the arbitration workgroup considered a modification that would have applied the highest price to all arbitrated deliveries with an adjustment, if needed, to accommodate specific terms of delivery. The analysis of the provision noted this shortcoming and its potential to complicate (or frustrate) realization of the intended benefit of applying the highest price to all deliveries. To arrive at fair price for each arbitrated delivery could require revisiting each decision, considering the conditions of the delivery and determining an appropriate adjustment to the arbitration outcome (see NPFMC/NMFS (2004b) at 395-6). In addition, application of an arbitrated price to deliveries of others would be patently unfair, since the persons involved in the delivery would not have been a party to the arbitration proceeding. In finalizing the arbitration program, the Council chose not to adopt a system that would apply the highest arbitrated price to other deliveries, instead electing to modify the provision to require consideration of the highest arbitrated price the following year in development of the price formula by the formula arbitrator. This lower emphasis recognizes the potential for a highest arbitrated price to reveal changing trends in the market or fishery, while also recognizing its potential to be inappropriate (or unfair) to simply apply the price to all deliveries.

As with most indicators, consideration of the highest arbitrated price by the formula arbitrator requires discretion and should be in the context of the delivery and the arbitration program, including the arbitration standard. As noted earlier, the binding arbitration proceedings are conducted on a “last, best offer” basis, under which the arbitrator is limited to choosing one of the offers of the competing parties. Under this structure, it is likely that the decision of the contract arbitrator is not the “best” price, but is only the better of the two offered prices. Taking the decision out of the context of its competing offer (and the circumstances surrounding the dispute) would seem to give inappropriate weight to the decision. Given these limitations, it seems appropriate for the formula arbitrator to be given adequate information concerning the issues in a proceeding and the opportunity to consider whether the outcome of the dispute should affect the application of the standard to landings in the fishery, as a whole.¹⁸

So, if the highest arbitrated price is an indicator of a trend that should be considered under the standard, then the formula arbitrator may be right to grant extra weight to that price in development of the formula. For example, if the highest arbitrated price is based on a product or market development that is known and available to all participants in a fishery, it may be appropriate to adjust the formula price upwards. On the other hand, if the highest arbitrated price arises from an effort by a processor to time deliveries to serve a specific limited market, which increases harvest costs for the harvester, it may be inappropriate to make any adjustment to the price formula based on the highest arbitrated price.

Confidentiality requirements for arbitration results also complicate consideration of the highest arbitrated price. Under the terms of the program, parties to an arbitration proceeding and arbitrators are generally prohibited from revealing the information and terms of any arbitration to others (see 80 CFR 680.20(g)).

¹⁸ Having the formula arbitrator consider the ‘highest arbitrated price’ in context of the standard should also relieve possible pressures on contract arbitrators to consider the situation of persons that are not party to the specific binding proceeding when making their decisions. A contract arbitrator that knows his decision will affect all prices in a fishery in the following year may feel some duty to come to a decision that is appropriate for all landings, as opposed to a decision that is appropriate for the parties to the dispute.

In light of this prohibition, incorporation of the highest arbitrated price into the price formula cannot be explained on its own terms. Instead, the justification for an adjustment must be explained in general terms with reference to the standard. In addition, if the price formula is intended to provide stability by maintaining the relative distribution of revenues between the harvesting and processing sectors, the justification for any price adjustment should be made in the context of the broader standard. Unexplained adjustments to the formula would only add uncertainty, which could decrease predictability of the arbitration system for participants and lead to more contentious negotiations.

Overall, the arbitration workgroup viewed the standard as contributing to stability by effectively “preserving the balance of interests” between the harvesting and processing sectors (Workgroup on Binding Arbitration, 2002). Achieving this balance requires the consideration of factors that historically affected the division of revenues. Once this balance is established, changes in fisheries and production that evolve after implementation of the program can be accommodated through equitable division of the benefits arising from those changes. Given the complexity of the standard, the modification of the price formula in the first two years of the program is not surprising. Over time, the formula should be expected to stabilize, as both the method and result of the arbitrator’s application of the standard become acceptable to the parties. In this evolution, it should be expected that several issues are considered. A few examples include contentions that ex vessel prices should be lower in the North region and the extent to which a single ex vessel price should apply to all deliveries in a fishery. Given the breadth of the standard (which allows the consideration of delivery location, stability of the participants, and efficiency and productivity of participants), the resolution of such issues seems properly left to the arbitrators after consideration of the contentions of the parties and relevant evidence.

Procedure for development of the market report and of the price formula

The second aspect of the market report and price formula that should be considered in assessing its effectiveness is the process by which they are developed. Some participants have expressed concern over this process. To produce these reports, the analyst/arbitrator communicates with and considers information submitted by participants in the different sectors. The process for these submissions is not specified in regulation (although certain limitations on the sharing of information are specified).¹⁹ As a result, on their own initiative, participants from both sides have informally contacted the arbitrator to provide their perspective on the market and appropriate terms of the price formula. The informality of this process has led to suspicion among participants over access to the arbitrator, with both sectors fearing that the other sector somehow has greater access to or influence over the arbitrator.

This perceived imbalance in input arises from the lack of a more formal process for providing input to the arbitrator. A few methods of resolving this could be considered. Without Council involvement, the arbitrator could specify a process for submission of comments and interaction with the arbitrator. This process could be developed in consultation with participants from both sectors. Since the regulations do not specify a process for the development of the market report and price formula, a regulatory amendment will not be necessary for the arbitrator to develop the process. If the agreement on a process for submission of information to the arbitrator becomes contentious, it could complicate the selection of the arbitrator.

One way to structure input from industry to the analyst/formula arbitrator is to allow the analyst to issue questions or request for comments on possible conclusions to industry members. Although the questions or request would likely telegraph certain aspects of the final report, it could improve information available to the arbitrator and improve transparency of the report and process. The questions or request would not

¹⁹ For example, the arbitrator/analyst is not permitted to disclose non-public information or the source of that information. In addition, information must be on activities that occurred at least 3 months prior to submission 80 CFR 680.20(e) and (f).

reveal any confidential information. In the long run, such a process could benefit both sectors by decreasing the time necessary for the development of a more stable, trusted, and reliable formula. Such a system for input could effectively provide for multiple iterations of the process in a single year. For example, if the formula arbitrator were to provide industry with suggested rationale for arriving at a certain division of first wholesale prices, industry responses could be considered prior to issuance of a final report for the fishery. Without this interactive process, participants must wait until the following year to respond to the arbitrator's rationale.

An alternative approach to establishing a process for input to the formula arbitrator would be for the Council to develop that process through an amendment to the program. The development of an amendment could reduce conflict during the annual process of selecting arbitrators and preparing the reports. On the other hand, an amendment would prevent participants from revising the process in response to unanticipated concerns that might arise or as circumstances and needs change over time. If the historic division of revenues becomes well-established, it is possible that the formula could become less contentious and require little in the way of industry input in the future.

In addition to general information submitted by industry participants, the formula arbitrator must also have access to the previous year's binding arbitration outcomes to consider the "highest arbitrated price" in developing the formula. In the first year of the program, the formula arbitrator received only the two bids and the contract arbitrator's decision, which simply identified the winning offer. These documents alone provide the formula arbitrator with little information with which to discern the justification for the decision. To enable the formula arbitrator to put reasonable and appropriate weight on the decision, the formula arbitrator likely requires additional information concerning the proceedings. To address this shortcoming, NOAA Fisheries has agreed to provide the formula arbitrator with all arbitration submittals of the parties. These submittals contain all supporting arguments advanced by the participants and should enable the formula arbitrator to understand the terms at issue and the circumstances surrounding the dispute, compare the two offers, and understand the arguments advanced by the parties in support of those arguments.²⁰ Providing the formula arbitrator with this information has the advantage of adding a check on the contract arbitration process, putting that decision in context to ensure that it is given appropriate weight (in light of the broader standard) in the following year's formula.

Share matching and initiation of binding arbitration

A critical aspect of the Class A IFQ/IPQ system is the process by which shares are matched and binding arbitration proceedings are initiated. The one-to-one relationship between A shares and IPQ raises the importance of making available information concerning uncommitted shares and establishing an efficient system for matching those shares and initiating arbitration, in the event a negotiated settlement of delivery terms cannot be reached. This section describes the operation of the system for matching shares and initiating arbitration under the program.

The system of negotiated and unilaterally matching shares is intended to facilitate the orderly commitment of Class A IFQ deliveries to processors holding IPQ. Coordinated with share matching is the process for initiating a binding arbitration proceeding. The regulatory process for matching Class A IFQ to IPQ begins on the issuance of those shares. For the first 5 days after shares are received, holders of Class A IFQ can, by negotiated agreement, commit their shares to holders of unused IPQ. A commitment need not settle all terms of delivery, but prevents either share holder from committing their shares to a different person. After this period of negotiated commitments, holders of Class A IFQ may unilaterally

²⁰ NOAA Fisheries has suggested that administrative complexity could be reduced if the formula arbitrator is provided these submittals by the arbitration organizations. If the Council elects to develop an amendment package for this program, NOAA Fisheries would likely suggest that the package include an amendment to address this administrative issue.

commit their shares to the holder of uncommitted IPQ. In addition, at any time during the first 10 days after the period of negotiated commitments, a holder of Class A IFQ that has committed those shares to an IPQ holder may unilaterally initiate an arbitration proceeding to settle outstanding terms of delivery.²¹ Alternatively, the parties may agree to take a ‘lengthy season approach’ to arbitration, under which any arbitration proceeding is delayed until a specific time during the season.²² The lengthy season approach must be adopted prior to the season opening (which under the current timelines for some fisheries occurs prior to the end of the period for initiating arbitration). By the end of the 10-day period, if a holder of Class A IFQ has not either initiated a proceeding or adopted the ‘lengthy season approach,’ the ability to access the arbitration system is effectively forfeited.²³

Several issues have arisen because of the compact time period during which shares must be matched and arbitration actions initiated. Table 8 shows the timing of various aspects of share matching and arbitration in the fisheries in the second year of the program.²⁴ The table shows the compressed time frame under which share holders are required to either negotiate terms of deliveries or arbitrate those terms. Under the standard arbitration timeline, harvesters and processors were compelled to match shares and either settle terms of delivery for those landings or commence arbitration for all Class A IFQ and IPQ in the two primary fisheries (the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries) and one small secondary fishery (the Western Bering Sea *C. bairdi* fishery).²⁵ In considering these time pressures, it should be borne in mind that most of the fishing and processing activity in the Bristol Bay red king crab has occurred in late October and November. So, not only must participants concern themselves with share matching and negotiations, but they also must prepare facilities, vessels, gear, processing lines and position vessels and crews for that fishery. It should also be considered that two minor fisheries (the St. Matthews blue king crab and the Pribilof red and blue king crab fisheries) have not been open since the program was implemented. If these fisheries were to open, their TAC announcements and IFQ/IPQ issuance would coincide with the TAC announcement and share issuances in the Bristol Bay red king crab

²¹ It should be noted that this structure, under which a harvester may unilaterally commit deliveries and initiate arbitration, effectively allow a Class A IFQ holder to compel an IPQ holder to accept deliveries at the arbitrated price. IPQ holders have no to power to compel an IFQ holder to commit to deliveries, in the absence of that commitment by a harvester.

²² It should be noted that, if the processor does not agree to the ‘lengthy season approach,’ a harvester may arbitrate that issue.

²³ During the first year of the program, a timing inconsistency between the regulation and the allocation of IFQ and IPQ prevented participants in the fishery from using the share matching and binding arbitration aspects of the arbitration system as intended. In the original regulation, the timeline for share matching and initiation of arbitration proceedings were relative to the season opening. Holders of A share IFQ could unilaterally commit landings to a holder of uncommitted IPQ any time less than 25 days prior to the season opening. In addition, IFQ holders were required to initiate binding arbitration between 25 days and 15 days of the season opening in a fishery. To allow the incorporation of annual survey data to be incorporated into the annual stock assessment and TAC setting processes, the TAC announcements in the Bristol Bay red king crab and Bering Sea *C. opilio* fishery were made fewer than 15 days prior to the season opening. This late issuance of IFQ and IPQ for the fisheries prevented participants from share matching and initiating arbitration within the specified time periods in the first year of the program. In the first year of the program, IFQ holders and IPQ holders addressed this shortcoming by consensual agreement to allow added time for share matching and initiation of arbitration under the “lengthy season approach” to arbitration, agreeing to delay the arbitration process beyond the regulatory deadlines. By the end of the first year, the Council had amended the timeline to allow unilateral share matching any time more than 5 days after the issuance of IFQ and IPQ and to permit initiation of arbitration any time more than 5 days and less than 15 days after the issuance of IFQ and IPQ.

²⁴ The timing of these actions in the first year is irrelevant and omitted because of the timing inconsistency between the regulation and TAC issuances, which the Council rectified with an amendment.

²⁵ Bering Sea *C. bairdi* fishery is divided into two fisheries, one east of 166° W longitude (the Eastern Bering Sea *C. bairdi* fishery) and one west of 166° W longitude (the Western Bering Sea *C. bairdi* fishery).

and Bering Sea *C. opilio* fisheries, adding further time pressures to share holders wishing to rely on the arbitration system.

Table 8. Critical dates for share matching and arbitration (2006-2007).

2006-2007

Fishery	Due Date for Market Report and Price Formula	TAC Announcement	IFQ/IPQ Issuance/Start - negotiated commitment period	End - negotiated commitments/Start - unilateral IFQ commitments/Start - initiation of arbitration actions	Season opening - End - period to agree to lengthy season approach	End - arbitration initiation period
Bristol Bay red king crab	August 26	September 29	October 6	October 11	October 15	October 21
Bering Sea <i>C. opilio</i>	August 26	September 29	October 6	October 11	October 15	October 21
Eastern Bering Sea <i>C. bairdi</i>	August 26	September 29	October 6	October 11	October 15	October 21
Western Bering Sea <i>C. bairdi</i>	August 26	September 29	October 6	October 11	October 15	October 21
Aleutian Islands golden king crab	June 26	July 18	August 6	August 11	August 15	August 21

The timeline for share matching and arbitration was initially keyed off the season opening. Recognizing the necessity of share matching and the importance of market timing, the workgroup that developed the arbitration system sought to have a system that would have delivery terms (including prices) decided prior to or early in the season. So the system would meet that objective, the workgroup's system needed to include share matching, negotiation, and the initiation of arbitration all in the preseason. The starting point for share matching and negotiations is, by necessity, the issuance of IFQ and IPQ. Without the IFQ and IPQ issuance, parties are unable to match shares.²⁶ Since the IFQ and IPQ issuance cannot be made without the TAC, the TAC announcement constrains the time for share matching and negotiations. The simplest (but likely infeasible) means to relieve the time pressure would be to make TAC announcements earlier, allowing for earlier issuance of IFQ and IPQ. This would allow the periods for negotiation, share commitment, and arbitration initiation to be extended back from the seasoning opening. However, TAC announcements likely cannot be made sufficiently earlier than their current dates. Annual stock surveys are conducted in the late summer of each year. Under the current schedule, analysts who produce stock assessments and TACs have little time to complete modeling needed for the fall fisheries. Given the timing of the survey and the need to complete models based on the most recent survey data, earlier TAC announcements are not feasible. A few other means of accommodating the need for additional time for negotiations are possible.

One way to alleviate some of the time pressure would be to move back the season opening for the Bering Sea *C. opilio* and the Western Bering Sea *C. bairdi* fisheries, which is prosecuted, in part, incidentally to the Bering Sea *C. opilio* fishery. Delaying this opening (and the timing of the associated negotiating, share matching, and arbitration periods) would allow participants to concentrate on the negotiations related to the Bristol Bay red king crab and Eastern Bering Sea *C. bairdi* fisheries, which is prosecuted, in part, incidentally to the Bristol Bay red king crab fishery. This delay would allow participants to complete share matching and negotiations for Bristol Bay red king crab and Eastern Bering Sea *C. bairdi* prior to

²⁶ Class B IFQ are issued only to QS holders that have no affiliation with an IPQ holder, to ensure that the negotiating leverage realized through those shares, which are free to be delivered to any processors, is realized by independent share holders. Affiliation is determined on an annual basis, to ensure that up to date ownership information is used for assessing affiliations. Since the total Class B IFQ issuance is 10 percent of the IFQ pool on an annual basis, the specific portion of each QS holder's allocation that will be Class B IFQ is not known with certainty until IFQ are issued. So, participants that wish to pre-plan their share matches cannot do so with certainty until IFQ are issued.

feeling the pressure to match shares or settle terms for Bering Sea *C. opilio* and Western Bering Sea *C. bairdi*.²⁷ Addressing the time constraints under this approach would require cooperation of state and federal managers. State managers would need to modify the current season opening dates for Bering Sea *C. opilio* and Western Bering Sea *C. bairdi*. The Council would need to modify the timeline for share matching and arbitration for the Bering Sea *C. opilio* and Western Bering Sea *C. bairdi* fisheries to extend those periods. Under the current regulation, share matching by agreement takes place in a 5-day period, while unilateral share matching by harvesters and initiation of arbitration both take place in a 10-day period. Coordination between state and federal regulators will be important to ensure that the modification of rules achieves the intended goal of extending these negotiation and arbitration periods.²⁸

Another method that would extend the time for negotiation and initiating arbitration would be for federal managers to simply extend the time periods from their current lengths. Extending the relatively short period for negotiations and initiating arbitration proceedings would address the problem of limited time to resolve share matching and delivery negotiations. The extension of the period into the fishing season could affect negotiating leverage between the parties. Much of the fishing in the Bristol Bay red king crab fishery is timed to allow catch from that fishery to be delivered to seasonal markets in Japan. Creating a timetable for share matching and arbitration that allows parties to delay activities in the fisheries to a point that limits access to the seasonal markets could enable one side to exert pressure on the other. The extension of the time period for the Bering Sea *C. opilio* and Western Bering Sea *C. bairdi* fisheries could relieve some of the time pressures caused by needing to negotiate landings for several fisheries simultaneously. In addition, since those fisheries are typically prosecuted after the New Year, the ability of participants to exert negotiating pressure by delaying negotiations into the season is minimal.

Extending the time for initiating arbitration could also affect the interests of the parties in several ways. Under the current arbitration system, each processor is limited to a single arbitration proceeding in each season. Whether extending the timeline for arbitration initiation would affect this aspect of the program should be clarified. Allowing multiple proceedings with each processor as a part of the extension could greatly affect their interests, as the arbitration proceedings can be costly to all participants and are a distraction from other business.

A related issue, raised by participants in the fisheries, is whether the use of the lengthy season approach, in and of itself, allows for multiple arbitration proceedings in a season. The regulations are not clear on this issue, but a few observations can be made. First, if a processor were to agree to different timeframes for the lengthy season approach with different harvesters, those agreements would seem to constitute the processor's consent to multiple proceedings with the different harvesters. Given this implicit consent, the processor would seem to have subjected itself to multiple proceedings. Second, if not agreed to by the processor (either implicitly or explicitly), it would seem to be consistent with the broad authority granted to arbitrators to allow the contract arbitrator decide whether multiple proceedings are appropriate. Third, in considering whether it is appropriate to have multiple proceedings with a processor, it should be kept in mind that many of the harvest share holders are in a single coordinated inter-cooperative exchange, under which all members share information and negotiate collectively. Although technically not a share holder or party to the proceedings, allowing members of this organization to participate in multiple arbitration

²⁷ To some degree, participants have relieved the time constraint by using the 'lengthy season approach' to arbitration in the Bering Sea *C. opilio* and Western Bering Sea *C. bairdi* fisheries. This addresses the problem only partially, since resorting to that approach requires the commitment of shares under the share matching system.

²⁸ As an interim measure, the state could delay the season opening for Bering Sea *C. opilio* and Western Bering Sea *C. bairdi* fisheries and NOAA Fisheries could delay the issuance of IFQ and IPQ. Since the negotiating and arbitration periods are timed from the issuance of IFQ and IPQ, delaying these issuances and the season opening would allow participants to finish their negotiations and arbitration proceedings for Bristol Bay red king crab prior to needing to engage in negotiations for Bering Sea *C. opilio* landings.

proceedings with a processor would seem inconsistent with the intent of allowing each person a single arbitration opportunity, since it would effectively allow this single representative body multiple attempts at arbitration.

The harvester arbitration organization has developed an internet-based system for matching shares – Sharematch.com – to facilitate real time commitment of shares and the timely exchange of information concerning uncommitted shares. While this system has benefited participants by creating a single forum for commitment of shares, achieving its objective requires timely information concerning share holdings, commitments, and transfers. The current system of transfers requires submission of original notarized signatures of both parties to the transfer to Restricted Access Management (RAM) Offices in Juneau. In addition, the application provides that transferors should allow up to 10 days for processing. The use of this system for transfers creates lags in information concerning share holdings, which prevent efficient matching of shares by participants (NMFS, 2006).²⁹ Given the tight timeline for matching shares to facilitate participation in the arbitration system, these lags could also prevent access to the arbitration system for some share holders. A more efficient system for administer transfers and transmitting share holdings information to arbitration organizations would greatly benefit participants and should be considered.

Contract Arbitration

During the first year of the program two binding arbitration proceedings occurred. Both concerned deliveries in the Bering Sea *C. opilio* fishery; one proceeding also resolved terms for landings in the Bering Sea *C. bairdi* fishery. Both proceedings arose under the lengthy season approach to arbitration, occurring in the spring, more than 6 months after the original deadline for initiation of arbitration proceedings in the fishery. A few factors likely explain this delay. As noted earlier, the regulatory timeline for arbitration in the first year of the program was inconsistent with the issuance of IFQ and IPQ, preventing participants from initiating arbitration under the regulatory timeline. Participants likely would have delayed arbitration in any case to coincide with receipt of price information in the fishery for the season’s catch. The *C. opilio* fishery is historically prosecuted after January 1st to obtain improved meatfill. Under the rationalization program the season opening coincides with the October 15th opening of the Bristol Bay red king crab fishery to allow participants maximum flexibility in timing their fishing. Since market conditions in the fall may not coincide with those after the New Year, participants from both sectors likely favored delaying arbitration to assess market conditions prevailing at the time of fishing and sale of products from the fishery. The delay also allowed the parties time to determine whether a reasonable settlement could be achieved, which would have avoided the cost and burden of the proceedings.

In both of the proceedings, harvesters participated collectively being represented by the inter-cooperative exchange, the FCMA cooperative that includes members of several of the harvest cooperatives formed under the program.³⁰ This FCMA cooperative represents the holders of as much as 70 percent of the unaffiliated harvesters by fishery. Confidentiality rules prevent disclosure of any substantive price

²⁹ Intra-cooperative transfers of shares and custom processing arrangements have mitigated this problem. Other transfers, which require agency administration, leave share holders uncertain concerning appropriate parties for share matching.

³⁰ Under the rationalization program, IFQ holders may form “harvest cooperatives” that serve the exclusive purpose of coordinating catch of the allocations of their members. Under antitrust law, harvesters that intended to negotiate landings prices collectively must comply with the requirements of the FCMA. Because of their different purposes, the limitations on and requirements for forming cooperatives under the FCMA differ from those of the rationalization program. As a result, IFQ holders in different harvest cooperatives have been able to organize under the FCMA to collectively negotiate prices by meeting the requirements of the FCMA.

information from the two proceedings. It can be reported that harvesters prevailed in both arbitration proceedings.

As the first binding arbitration proceedings under the system, several issues have been raised by participants. Share holders in the fisheries that were not party to these proceedings, as well as arbitration organizations, have also raised some issues with these aspects of the program. This section describes the binding proceedings and discusses issues raised to date. The discussion that follows separates substantive issues (arising out of interpretation and application of the arbitration standard) from procedural issues (arising from under the process for arbitration).

Application of the arbitration standard in binding arbitration

The arbitration standard delineates the principle role of both the formula arbitrator and the contract arbitrator as establishing an ex vessel price that preserves the historic division of first wholesale revenues in the fishery. At this basic level, the different arbitrators share the same function. The roles of the arbitrators, however, differ in the system. The formula arbitrator develops a price formula (based on the standard) that should apply generally to all deliveries in a fishery. The contract arbitrator selects the better of two last best offers, based on the standard. The formula arbitrator's role is to apply it to the overall relationship between harvesters and processors in the fishery; the contract arbitrator's role is to apply to the standard to a delivery or set of deliveries from one or more specific harvesters to a specific processor. As a result, the application of the arbitration standard by the contract arbitrator differs somewhat from the application of the standard by the formula arbitrator.

The standard to be applied by the contract arbitrator contains three elements. The first element directs the contract arbitrator to establish an ex vessel price that preserves the historic division of first wholesale revenues in the fishery. The second element directs the arbitrator, when establishing that price (which preserves the division of revenues) to consider the listed factors, including current ex vessel, consumer, and wholesale prices, innovations and developments, efficiency and productivity, quality, and financial health and stability of the harvesting and processing sectors. The third element directs the arbitrator to consider the price formula developed by the formula arbitrator.

As with the formula arbitrator, the wording of the regulation suggests that the overarching principle guiding the contractor arbitrator's application of the standard is to establish a price that preserves the historic division of first wholesale revenues.³¹ In that context, the contract arbitrator is directed to consider the other enumerated factors. Two possible means of assessing the influence of other relevant factors are suggested by the workgroup that developed the standard and the analysis of the arbitration standard. First, in determining the ex vessel price that preserves the historic division of first wholesale revenues, the arbitrator can consider whether any of the listed factors affected that division (Workgroup on Binding Arbitration, 2002a). For example, some participants contend that the division of revenues reflected in ex vessel prices is influenced by delivery location and total harvest levels. Consideration of listed factors in this manner is consistent with maintaining the preservation of the division of first wholesale prices as the primary role of the arbitrator.

Second, the workgroup and analysis suggested the listed factors may be considered to the extent that they concern events that occurred subsequent to implementation of the rationalization program (Workgroup on Binding Arbitration (2002a); NPFMC/NMFS, (2004a) at 4-162). Changes in market conditions, product forms, and production processes that occur subsequent to implementation would all seem to within the scope of this consideration. In general, the standard suggests that these factors are to be considered while maintaining the overall objective of preserving the historic division of first wholesale revenues. For

³¹ Much of the discussion of the application of the standard by the formula arbitrator applies to the application of the standard by the contract arbitrator. That discussion is summarized in this section, but is not repeated in its entirety.

example, considering ex vessel prices for A share, B share, and C share landings should not compel an arbitrator to match any of those prices in an arbitration finding, but instead consider whether those prices provide some indication of trends in production or in the fishery that should be considered when making an arbitration finding. For example, if a processor's A share price offer lags substantially below other A share prices in the market, it could be an indication that either the processor is not offering a reasonable price given market conditions or the processor disputes the historic division of revenues supported by other processor offers. Under the first scenario, the processor's production and market choices could be yielding less than those observed in the market generally. In this instance, an arbitrator could be asked to decide whether it is reasonable under the standard for the processor to be compelled to pay a division of revenues based on the first wholesale price received by other processors that achieved greater success in the market. Such a finding could be justified, if the processor is perceived to have not made appropriate production and marketing efforts.³² Alternatively, the processor could be simply trying to pay a lower price based on its perception that harvesters have received a lower portion of first wholesale revenues in the fishery, than other processors may be paying. In this case, the processor could be contesting the historic division of revenues. The arbitrator's finding may hinge on an assessment of the historic division of first wholesale revenues and whether the lower price is warranted under that standard, despite other processors paying higher prices for deliveries.³³

While the above discussion of the standard addresses some of the pricing issues that are likely to arise in the fishery, it does not adequately address the complexity (or multidimensionality) of delivery terms and negotiations. In the first two years of the program some participants have struggled to interpret the standard and its application to their circumstances. Since the arbitration system is the fall back for negotiation stalemates, it is also the backdrop for negotiations. The novelty of the arbitration system and the absence of information from the few binding proceedings that have occurred have contributed to this anxiety among some participants.³⁴ Some representatives of participants to the first year arbitration proceedings assert that they were nonplussed by the outcome. Over time, the level of predictability should increase. Yet, given the complexity of issues that could be faced by the arbitrator, it is possible that from time to time some outcomes may not be fully predictable. For the program to be considered successful, however, participants must believe that the arbitration system is capable of successfully addressing these issues, if necessary.

The more complex negotiation issues to date relate to factors beyond the basic consideration of the historic division of revenues. One issue is whether the historic division of revenues has differed between the North and the South regions. This issue was central to the dispute in the first year arbitration proceedings. Given that the arbitration standard explicitly directs the arbitrator to consider delivery location in applying the 'historic division of revenues,' the consideration of the appropriateness of differentiating North and South pricing is within the scope of the arbitrator's authority. Additionally, some processors have advanced an argument that operating costs are substantially higher in the North

³² On the other hand, if a processor took reasonable (but unsuccessful) risks in the market, it could be reasonable for the arbitrator to find for the processor, despite its lower first wholesale revenues. In this instance, it is possible that the arbitrator could find that the processor should not bear the entire burden of its attempt to pursue the most valuable market. This finding would likely depend on the specific relationship between harvesters and processors and whether harvesters would share in the benefits, had the processor achieved better results in the market. In short, the arbitrator should be called on to reasonably assess the circumstances in light of the overall market and the relationship between the harvester and processor.

³³ Some harvesters have been frustrated that processors are unwilling to simply match higher prices offered by other processors, as happened in the pre-rationalization fishery. Given the extended season and the isolation of each processor in the arbitration system, it is not surprising that processors are reluctant to quickly to match offers of competitors.

³⁴ Under the arbitration system no information from the arbitration proceedings can be shared among non-participants.

region. According to this argument, lower ex vessel prices in the North are justified to maintain production efficiencies and the financial health of processors in the region. In addition, some processors contend that the consolidation on harvester shares on fewer vessels has caused inefficiencies in processing by extending processing activities over a longer period. Under the standard, the arbitrator is directed to consider production efficiency (given the limitations of the management structure) and the financial health of the both the harvesting and processing sectors when applying the historic division of revenues standard. Again, the breadth of considerations under the standard appears to permit the arbitrator to consider these arguments. Whether such arguments are compelling (or determinative of the arbitration outcome) is likely to depend on the circumstances.³⁵

Process for binding arbitration

This portion of the paper addresses the process used once an IFQ holder has initiated a binding arbitration proceeding. The first step in that process occurs simultaneously with the initiation of the arbitration proceeding. At that time, the IFQ holder that initiated proceeding selects a contract arbitrator to preside over the arbitration (see 80 CFR 680.20(h)(3)(v)). In the first year of the program, this first step engendered some debate among participants in the program.³⁶ Under the current regulation, a pool of contract arbitrators is selected by the independent harvesters' arbitration organization and processors' arbitration organization (80 CFR 680.20(e)(4)(i)). Some participants believe that authorizing the IFQ holder to select the arbitrator provides an advantage in the proceeding. The extent of any potential advantage is limited by the joint selection of the pool of arbitrators by PQS holders. Yet, the first year experience does suggest that IFQ holders could have used this selection to their advantage. IFQ holders in both proceedings were represented by the inter-cooperative exchange, the collective negotiating entity made up of members of most of the harvester cooperatives formed under the program. The inter-cooperative exchange selected the same arbitrator to preside over both proceedings. The selections for both proceedings were made on approximately the same date. While the inter-cooperative exchange representatives had no experience with the arbitrator when making the selection, they would be remiss not to have considered potential strategic effects of using the same arbitrator to preside over both proceedings.

In considering whether any potential advantage arising out of this arbitrator selection process merits correction, one should carefully consider the rationale for the current process, the overall needs of the system, and the fairness of the current rule. Since the pool is selected jointly, the risk of a biased arbitrator is limited. Under the current schedule for arbitration proceedings, time is of the essence. Arbitration proceedings are intended to be resolved prior to the season, to limit the potential for disruption of operations during the season. Given the relatively late TAC announcements and the need to complete share matching prior to arbitration, an efficient system for the selection of an arbitrator is necessary. Having the arbitrator identified simultaneously with the initiation of the proceeding adds efficiency, by preventing delays that could arise under a system of joint selection. Typically, such a system would require either agreement of the parties to the proceeding or a tiered selection process. Joint selection by the parties could delay proceedings, if the parties were not able to quickly reach agreement. Alternatively, a tiered process could be used under which each party selects an arbitrator, who in turn, agree on a third

³⁵ An interesting aspect of the program is the interaction of the formula arbitrator's annual report and the binding arbitration proceedings presided over by the contract arbitrator. By providing the formula arbitrator with the submissions from the binding proceedings, the formula arbitrator can provide some guidance on factors at issue in the prior year's binding proceedings. Less structured than a formal record of opinion from the binding process (which has been suggested by some participants), this informal feedback creates a flexible system under which develops some level of reliability concerning the application of the standard.

³⁶ It is worth noting that the workgroup that developed much of the arbitration program and the Council in its motion establishing the program both proposed that all arbitrators be selected jointly (NPFMC, 2004; Work Group on Binding Arbitration, 2003). Whether the joint selection of the pool of arbitrators alone satisfies that directive is debatable.

arbitrator. This third arbitrator would preside over the proceeding. Such a system could result in a brief delay of one or two days. The importance of that delay likely depends on the fishery and the nature of the dispute. This process, however, would also increase costs slightly by involving two additional parties in the selection process. If the primary concern to arise out of the first year arbitrations is the use of the same arbitrator for both proceedings, a simple modification to the current rule could prohibit an arbitrator from presiding over more than one proceeding in a fishery in a single year.

Beyond the selection of the arbitrator, much of the regulations governing the binding arbitration process are general. Some of the dissention between harvester and processors has centered on this lack of specificity. Much of the remainder of this section describes areas of the arbitration process that some participants believe require additional definition. In considering whether adding that definition is appropriate, the Council should consider the degree to which that definition could provide or be used to advantage specific participants in the arbitration process and the extent to which that definition could constrain the process.

The regulation provides that the arbitrator should meet with the participants as soon as possible after the arbitration is initiated to schedule the proceeding (50 CFR 680.20(h)(3)(vii)). In addition, the regulation directs the contract arbitrator to meet with the parties to determine the terms that must be included in the last best offer submissions, which may be collectively submitted by harvesters that are members of an FCMA cooperative (50 CFR 680.20(h)(3)(viii) and (xi)).³⁷ The arbitrator is limited to selecting from the two last best offers (50 CFR 680.20(h)(3)(viii) and (xi)). The arbitrator's finding must be delivered to the parties within 5 days of submission of the offers (or within 10 days of submission, if the arbitration takes place at least 15 days prior to the season opening, which is an impossibility under the current timelines) (50 CFR 680.20(h)(3)(xi)). Beyond these specific requirements, the arbitration procedure is undefined by the regulation. With the exception of quality and performance disputes, participants in the fishery (and in arbitration proceedings) can seek remedies only through civil law. Furthermore, the regulations do not provide a process for appealing an arbitration decision.

Some participants in the system have raised questions concerning the scope of authority of the arbitrator. The first issue raised is that the regulations do not clearly set out whether the arbitrator has the power to determine the scope of his authority with respect to disputes or whether a particular dispute may be arbitrated.³⁸ Generally, arbitrators have the authority to make determinations of whether procedural requirements for arbitration have been met (i.e., procedural arbitrability). So, it is likely that an arbitrator would be found to have the authority to determine issues of whether harvesters properly initiated or joined a proceeding to arbitrate. One particular issue that has arisen under the program concerns whether parties properly agreed to the lengthy season approach (i.e., did the parties have an agreement to arbitrate using the lengthy season approach). While the existence of an agreement to arbitrate is typically decided by courts (see Section 6, Revised Uniform Arbitration Act (RUAA) of 2000 and Section 4, Federal Arbitration Act (FAA)), in at least one instance where the parties submitted the issue to the arbitrator, the arbitrator's finding was found to govern (see *First Options of Chicago, Inc v. Kaplan*, 514 U.S. 938,

³⁷ The regulation identifies several price structures that may be included in the terms of last best offers (see 80 CFR 680.20(h)(3)(viii)). The rule also refers to the last best offers as defining the "terms of delivery" (see 80 CFR 680.20(h)(3)(ix)). This statement that the last best offers define the terms of delivery, together with the breadth of factors that must be considered under the standard, clearly imply that any and all terms of delivery may be specified in an offer and decided in an arbitration proceeding.

³⁸ The following discussion pertains largely to legal matters and interpretations. This paper attempts to provide some background, which the Council could use to determine whether certain issues require additional consideration (or legal research). While the discussion draws on legal resources to support any conclusions, the Council should be advised that these are at best preliminary discussions and should not be regarded as legal opinions. Conclusions concerning typical arbitration practices are drawn in most part from the Revised Uniform Arbitration Act (RUAA) of 2000 and the Federal Arbitration Act (FAA).

(1995)). The Council should consider the degree to which potential litigation of this issue threatens achievement of program objectives.

Once the arbitration proceeding is initiated, it is typical practice for the proceeding to be defined by the arbitrator in a manner that the arbitrator considers fair and expeditious (see Section 15, RUAA, 2000). Further definition of the arbitration process could avoid uncertainty and potential bias that could arise, if the process adopted by an arbitrator favored one party over the other. Participants in the fishery that are unfamiliar with arbitration, in general, or with the process used by a particular arbitrator could be disadvantaged in proceedings. These benefits should be weighed against the loss of flexibility that will occur, if a specific process is adopted that cannot be revised by the arbitrator for specific circumstances. Providing the arbitrator with the opportunity to weight the need for expeditious resolution and potential fairness issues that could arise under various procedures may allow the arbitrator to minimize risks to either participant's interests.³⁹

Some participants have also expressed their preference for the arbitration process (once an arbitration proceeding is initiated) being better defined by the Council. Participants in the first year proceedings raised concerns that the relatively short time period during which proceedings occurred provided little opportunity to explore the validity of data presented by the opposing party. In addition, the process used is asserted to have provided no opportunity to cross examine concerning evidence presented by the opposing party. The perception of imbalance in preparation time may have been exacerbated by the fact that the inter-cooperative exchange representing harvesters in the proceeding had previously participated in an arbitration proceeding with the same arbitrator involving landings from the same fishery. This prior experience could be perceived as providing inter-cooperative exchange with an advantage not only through some knowledge of the receptiveness of the arbitrator to substantive arguments, but through familiarity with the process.

Some participants have also argued that the contract arbitrators should be required to provide opinions supporting all arbitration decisions. These opinions could serve as precedents for future actions or could provide a basis for the decision to be scrutinized in any judicial review initiated by dissatisfied parties. The development of opinions and judicial review could provide additional information to parties concerning the operation of the system and may increase predictability of the system. On the other hand, these opinions and reviews could contribute to the adversarial nature of the process. As with other changes in the program, the potential of these changes to alter the negotiating positions of participants in developing any amendment should be considered.

Persons favoring arbitration as a means of resolving disputes often do so, in part, for its finality. As such, arbitration decisions are typically subject to limited judicial review. In most instances, the grounds for appeals of arbitration outcomes are defined to be limited to cases of fraud, impartiality, or misconduct (see Section 23, RUAA and Section 10, FAA). Courts, however, have allowed for arbitration systems to expand judicial review (see *Gateway Tech. Inc. v. MCI Telecommunications Corp.*, 64 F.3d 993 (5th Cir. 1995) and *Lapine Tech. Corp. v. Kyocera Corp.*, 130 F.3d 884 (9th Cir. 1997)). The scope of judicial review is often greater for "compulsory arbitration" under which parties are required to participate in an arbitration system for public policy reasons (such as to avoid teacher or firefighter strikes). These systems typically mandate evidentiary records from the arbitration proceeding and written decisions (see Nolan-Haley, 2001).

³⁹ Some participants have also expressed their belief that the arbitrator should be permitted to assume that requested evidence that a party fails to submit would disadvantage that party. Given the breadth of authority in the arbitrator, the arbitrator would seem to have the ability to weight the failure to present evidence appropriately. An amendment to the regulations could clarify this discretion.

As with other aspects of this system, the Council should consider the overall effects of the arbitrator providing supporting opinions for decisions and creating for expanded judicial review of outcomes. Leaving aside antitrust considerations⁴⁰ (which are certain to be raised by a system of arbitration opinions and an appeals process) the implications of such a system should be assessed. A potential benefit of the arbitrator providing a basis for the outcome is that participants could develop a better understanding of the application of the standard, at least by that arbitrator. If the decision is not subject to expanded judicial review (and is not precedential), the need for and benefit from the opinion is likely minimal, as it may not even provide guidance to parties to the arbitration.

If judicial review of the arbitrator's findings are expanded, standards for review would need to be developed (i.e., under what conditions would a decision be reversed). While a system of arbitrator opinions and expanded judicial review could provide a venue to contest outcomes perceived to be unfair, the system would also decrease finality of outcomes. The need for early and final resolution of disputes was deemed important in the development of the arbitration program. Also, persons dissatisfied with the outcome of an arbitration proceeding could use the threat of judicial review to leverage different terms than those specified by the arbitrator. If delivery timing is important to meet certain market or production demands, it is easy to see that seeking judicial review (or the threat of seeking judicial review) could be used to strategically. In addition, a system of opinions and expanded judicial review could also add substantially to the costs of the system.

Under a system of precedential outcomes (in which arbitrators provide reasoned opinions for all decisions), opinions could be used to further clarify application of the standard for all participants. Although this might provide clarity of the standard, the establishment of a precedent could hurt fishery participants that are not a party to the arbitration, who might be bound by the precedent in the future. Considering the importance of the standard to arbitration outcomes, it is possible that any review of an arbitration outcome would draw most participants in each sector to submit briefs, since they would be concerned that the interpretation of the standard that determined the outcome of the review would be applied to them in the future. Such a system of judicial review and precedents would likely add substantially to the cost of a system that is already perceived by participants as overly expensive.

The potential benefits of such a system of arbitration opinions and expanded judicial review, with respect to both arbitration outcomes and development of the interpretation of the standard, should be weighed against the current system. In the current system, arbitration outcomes are perceived as final.⁴¹ It is possible that an arbitrator could misinterpret the standard, in which case, the parties to the arbitration would be left to meet the terms of the outcome for that year.⁴² The finality of the decision, however, would effectively move participants past negotiation of terms to resume operations in the fishery. If necessary, the participants could make efforts to remove the arbitrator from the pool of contract arbitrators in the following year. In the current system, the evolution of the interpretation of the arbitration standard is realized through the annual reports of the formula arbitrator and the exchange of information between the formula arbitrator and contract arbitrators. The formula arbitrator is required to consider the highest arbitrated outcome from the previous year; the contract arbitrator is required to consider the price formula generated by the formula arbitrator. In the long run, this annual process could provide some of

⁴⁰ The current position of NOAA General Counsel and the Justice Department is that any information from these individual proceedings must remain confidential to limit the potential for anticompetitive activities. Some participants in both sectors have expressed their opinion that the release of this information at the end of a season would add certainty to the arbitration process without creating increasing any risk of anticompetitive behavior.

⁴¹ It is important to note that since no judicial challenges of arbitration outcomes have occurred, it is possible that a future challenge could bring into question the finality of arbitration outcomes depending on the outcome of that challenge.

⁴² Whether the last best offer format of the arbitration is likely to exacerbate errors is not known.

the desired certainty and predictability with respect to interpretation of the arbitration standard. Unfortunately, this feedback takes place only once annually, extending the time over which interpretation of the standard is likely to evolve and be clarified.⁴³

Some participants have suggested that the limitation on the release of arbitration outcomes (intended to prevent anticompetitive behavior) is overly restrictive. These participants believe that making the outcomes public at the end of the season would increase predictability of the arbitration system. Current regulations prohibit release of these outcomes indefinitely (see 50 CFR 680.20(e)(2)(ii) and (iii) and (h)(3)(i)). Participants who support the release of these outcomes at the season end believe that the information creates no potential for anticompetitive behavior because the information is no longer current at that point. The information, however, could provide participants with information concerning the application of the standard that would increase understanding of arbitration outcomes in the future. Whether such a release could be used for anticompetitive purposes should be fully examined prior to changing the current limitation.

Lastly, both arbitration organizations have suggest that it is appropriate to preclude lawsuits against arbitration organizations, the third party data provider (who manages notices required to given under the system), and all market analysts and arbitrators. Such immunity is typically provided to arbitration organizations that administer arbitration proceedings and arbitrators (see Section 14, RUAA (2000)). Arbitrators, in turn, are typically required to abide by ethical standards similar to those applicable to judges (Nolan-Haley, 2001).

The B Share Allocation

Since 90 percent of the annual IFQ allocation is made up of A shares, the distribution of benefits between harvesters and processors under the rationalization program has in large part depended on the distribution of benefits from landings of Class A IFQ. In developing the program, however, the Council included 10 percent of the annual IFQ allocation as B shares, which may be landed with any processor. To ensure that the benefit of the B share allocation to independent harvesters is not diminished by vertical integration, B shares are issued only to QS holders that are independent of processor affiliation.⁴⁴ This allocation of B shares was intended to serve a few purposes. First, the allocation provides some degree of competition, which might otherwise be lacking under a system in which harvesters are compelled to land catch with processors holding IPQ. Second, by allowing B shares to flow to their most valuable use, the allocation was thought to provide a check on the market, in the event that IPQ holders were not aggressively pursuing market opportunities for their products. A third use of B shares could be to facilitate processor entry (NPFMC/NMFS, 2004a). The following discussion addresses each of these potential purposes for the B share allocations. Since only a single year's landings data are available, much of the discussion draws on anecdotal sources.

The ability to use B share allocations for negotiating leverage (beyond that available with A share allocations) has not been clearly established. The most obvious source of information for establishing such leverage would be price information from deliveries. Current data sources, however, do not provide final prices by share type. The only data that show price by share type are elandings data collected by NOAA Fisheries. These data are collected at the time of landing and do not include any post-landing adjustments or bonuses, which are reported to be an important part of pricing under current practices. Table 9 below shows average ex vessel payments at the time of landing by share type from the different fisheries in the first year of the program. The table suggests that on average B and C share landings

⁴³ It is possible that a more structured process for submission of information to the formula arbitrator could increase certainty by improving feedback to the arbitrator from participants during the development of the annual report.

⁴⁴ Affiliation under the regulation exists in the case of either functional control of the QS holder or common ownership in excess of 10 percent (50 CFR 680.2).

received a slight premium relative to A share landings. The exception is the *C. bairdi* fishery, where C shares received a lower price on landing than harvests by the other share types. The amount of an premium may not be accurately shown by the data in the table, since post-landing bonuses are not included in any prices.

Table 9. Average ex vessel payment at the time of landing by fishery and share type, 2005-2006 season (dollars per pound).

	Average ex vessel price of landings of		
	A shares	B shares	C shares
Bristol Bay red king crab	4.372	4.479	4.492
Bering Sea <i>C. opilio</i>	0.904	0.956	0.965
Western Bering Sea <i>C. bairdi</i>	1.311	1.316	1.237
Eastern Aleutian golden king crab	2.548	2.577*	**
Western Aleutian golden king crab	2.445	**	**

* Average ex vessel price of B share and C share landings combined

** Withheld for confidentiality.

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

Participants in the fisheries report the extent to which B and C share deliveries have drawn a premium varies across processors and fisheries. Some processors are reported to have paid bonuses to attract deliveries of B share harvests. Participants report that premiums for B and C share deliveries are typically a few cents, but have ranged as high as approximately ten cents. Some processors have chosen not to compete for landings of B share and C share harvests, but have accepted deliveries of B and C share harvests at the same price as A share landings.⁴⁵ Under these circumstances, the B and C share harvests received by the processor have typically come from the same fleet delivering A share harvests. In some cases, B and C share deliveries are reported to have brought lower prices than A share deliveries. This conclusion would appear to be supported by the average reported price for C share deliveries in the *C. bairdi* fisheries, which was lower than the average reported price for A share deliveries in the first season.

The absence of a substantial premium on B share landings in the first two years of the program could be explained by a few factors other than the utility of B shares serving their purpose as competitive market shares. In the first two years of the program, crab markets have been at some of their lowest levels in recent years. In such a market, it is possible that the difference between a competitive price and the price arrived at through the arbitration standard is relatively small. Even in better markets, it is possible that the standard, under which the historic division of revenues is a primary consideration, would result in a price similar to the competitive price. Those historic prices were determined in a competitive market, but one under a different management structure that may have affected the distribution.

One approach to consider competition that could be induced with B shares is to examine the amount of sold crab harvested with B shares by the average vessel.⁴⁶ Table 10 shows the sold B share deliveries of vessels that harvested any crab using Class B IFQ. The table shows that the average (or mean) vessel harvest of B share crab is relatively small amount (i.e., less than one full delivery for most vessels in the fisheries). In the two relatively large fisheries (the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries), the four vessels harvesting the most crab with B shares averaged in excess of 100,000 pounds and 275,000 pounds, respectively. These quantities of catch are adequate to support a full trip in both fisheries.⁴⁷

⁴⁵ Some participants have suggested that processors are reluctant to bid up the price for B shares in part because they fear that arbitrators may simply equate A share ex vessel prices with B share ex vessel prices.

⁴⁶ Crab not sold is excluded from the amounts shown in the table. These amounts are mostly deadloss.

⁴⁷ Most vessels in the fishery can carry more the 100,000 pounds of red king crab. A trip of 100,000 pounds is not an unreasonable size delivery in the fishery.

Table 10. Sold B share crab (in pounds) harvested by vessels harvesting any B share crab (2005-2006).

B share by vessel

	Mean vessel harvest	Median vessel harvest	Average of highest four vessel harvests
Bristol Bay red king crab	24,843	16,579	105,427
Bering Sea <i>C. opilio</i>	61,153	39,553	272,206
Western Bering Sea <i>C. bairdi</i>	3,248	960	12,026
Eastern Aleutian Islands golden king crab	51,020	37,470	*

* withheld for confidentiality

Note: Information from the Western Aleutian Islands golden king crab fishery are withheld for confidentiality.

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

A few observations concerning the use of B shares are important. Some vessels harvested very little crab with B shares. In some cases, B shares appear to be used simply to offset deadloss on a landing that otherwise included only A share catch. To the extent that B shares are used to offset deadloss, they are not satisfying any of their distributive objectives (i.e., inducing competition or facilitating entry). In other instances, minor amounts of B share crab were sold with deliveries primarily made up of A share catch. These deliveries also likely had little distributive impact. In addition, the data suggest that effective use of B shares to induce competition (which may require a full delivery to make a delivery economical) is challenging with B shares constituting only 10 percent of the IFQ allocation at current TAC levels. Harvest cooperatives can certainly aid in the coordination of use of B shares, as could the inter-cooperative exchange, to the extent that entity is used for communications and coordination of B share landings by members of different cooperatives.

As with many aspects of the new management program, it is not possible at this stage to determine whether the IPQ landing requirements have in any way limited flow of crab production to its best uses. New markets take time to develop, often a period of years. In the first two years, some harvesters and processors (including those holding IPQ) are reported to have begun efforts to develop new markets, such as markets for live and fresh crab. The development of these new markets should be monitored over the next few years, together with the use of A share and B share landings to serve any new markets, to assess whether IPQ landing requirements could be constraining the realization of production efficiencies.

As with the other two purposes intended to be served by the B share allocations, the use of those shares to facilitate entry is difficult to assess. A few processors holding limited or no IPQ are reported to have drawn landings of B share harvests in the first two years of the program. In addition, some existing processors that do not hold processing shares are reported to have been offered B share landings, but have rejected those offers. The reason for these rejections is not known, but the offered landings are reported to have been made to holders of processor shares. In considering the extent to which these landings (and any future landings) of B shares are supporting processor entry one needs to consider the nature of the crab fisheries and their supporting processing industry. Prior to implementation of the rationalization program, fewer than 12 processors dominated the processing sector in each fishery, accounting for in excess of 98 percent of the processing in the fishery during the processing qualifying years (NPFMC/NMFS, 2004b). The remoteness of the fisheries and complexities of delivering processed products to markets, together with the efficiencies that are asserted to be associated with relatively large scale production that includes finfish products, are thought to have limited entry to processing prior to implementation of the program. Given these challenges in the processing industry, any absence of entry cannot be firmly attributed to the share structure established by the program. In all likelihood, effective entry to the processing sector will require purchase of PQS. With only 10 percent of the crab in B shares, it is unlikely that a processor can

enter the fishery and expect a reliable supply of crab without purchasing into the processor share market. Availability of processing shares in the market is questionable, given that most of the processors are established firms with diverse fisheries interests. To date, one new entity has acquired processing shares. Whether that entity is unaffiliated with other (or prior) processing share holders is not known. To assess whether the share structure inhibits entry will require consideration of the extent to which it is reasonable to expect that processing capacity could be displaced by those new entrants, in the absence of the program's share structure.

Issues

The experiences of participants in the first two years (including the two binding proceedings) provided a reasonable test of the system and illustrate some of the complexities in delivery negotiations and application of the arbitration system to deliveries in the fisheries. Some of these issues do not fall clearly into one of the above sections. This section reviews several issues that should be considered in assessing whether the program is meeting expectations.

Delivery Timing

Perhaps more than any issue, delivery timing (particularly in remote locations) and its effects on processing and fishing operations have caused consternation among the fleet and processors. With the expansion of the fishing season from a few days or weeks to several months, timing of deliveries has become critical to realizing production efficiencies for both sectors. Positioning vessels and crews for harvesting and processing in the fisheries, who then sit idle, adds substantially to the operational costs of both sectors. To control production efficiency losses some processors have adopted negotiation positions that penalize (or make lower payments to harvesters) for deliveries outside of identified windows. Although in some instances these positions have been thought to be heavy-handed, they are a reflection of the reality that extending operations over a longer period of time can add substantially to costs, particularly in plants with little opportunity to process catch from non-crab fisheries.⁴⁸ Coordination of deliveries is therefore critical to realizing benefits under the program. The organization of fishing in cooperatives has aided the sectors in addressing this issue by providing improved coordination among harvesters.

Complicating delivery schedules is the dependence of harvesters and processors on other fisheries. Many of the large processors in the crab fisheries also have interests in the Bering Sea pollock fisheries. Since the roe season in that fishery coincides with the Bering Sea *C. opilio* fishery, processors have had to juggle production across the two fisheries. In some instances, crab fishermen have been less than satisfied with the priority given crab landings. On the other side, many crab fishermen also participate in Pacific cod fisheries. Recent high cod prices, together with the flexibility offered by the share allocations in the rationalization program, have induced increased participation of crab fishermen in the fall and winter Pacific cod fisheries. In some instances, processors have been frustrated by harvesters' reluctance to accommodate their delivery timing preferences due to conflicts with Pacific cod fishing.⁴⁹ These conflicts with other fisheries are likely to continue in the future as differences delivery preferences persist and timing of optimum crab meatfill and roe quality vary to some extent annually.

⁴⁸ Some harvesters delivering in the North region have expressed concern with delivery scheduling and waiting to offload. It is unclear the extent to which these issues are caused by the unanticipated circumstances in that region (i.e., the processor fire or ice conditions). As processing consolidates in the North region (as might be expected with the new exemption of custom processing from the processor share use caps), it is possible that scheduling complications in the North could be exacerbated.

⁴⁹ Some harvesters also have questioned whether delays in completing crab negotiations were used strategically to allow other harvesters time to complete cod harvests prior to the fleet beginning crab fishing.

Given the individual scheduling preferences of harvesters and processors, delivery timing issues are by necessity complex. Yet, if participants believed these issues required resolution by an arbitrator, it is likely that an arbitrator could reasonably consider the different interests and provide an arbitrated outcome. Likely, each of the last best offers would balance price against delivery preferences. In the first few years of the program, when the interpretation of the “historic division of revenues” aspect of the arbitration standard is not firmly established, it is likely that the more subtle issue of delivery timing is likely to be overshadowed by arguments concerning the more central issue of the division of revenues aspect of the standard. As a result, the arbitration outcomes for the first few years could frustrate some participants, who believe that their interests are being overlooked. Over time, as the historic division of revenues aspect of the standard becomes more established, arbitrators are likely to be better equipped to address the more subtle, circumstance dependent issues, such as delivery timing.

In the first two years of the program, the challenge of achieving coordination has been exacerbated because of uncontrollable events. In the first year of the program, unanticipated ice conditions slowed fishing in the Bering Sea *C. opilio* fishery. Both sectors were burdened by the costs of standing by until conditions improved. In the second year, a fire that disabled one processing platform intended to operate in the North region caused substantial rescheduling of landings. Although the fire affected only a single platform, almost all processors were affected because of custom processing arrangements and attempts to move landings at other platforms in both the North and South to mitigate added operational costs which can be attributed to the disabled platform. Difficulties redistributing deliveries are compounded by the rigidity of the regionalized Class A IFQ/IPQ matching requirements and the application of those limitations to such a large portion of the harvest share pool. Given the share matching structure, movement of a landing requires the share holders (the Class A IFQ holder and the IPQ holder) to find both available Class A IFQ and available IPQ with consistent regional designations or the harvester to use Class B IFQ. Given that the system requires full share matching in the preseason to accommodate the arbitration structure, redistributing deliveries using Class A IFQ must involve both holder of the substituting Class A IFQ and the holder of the substituting IPQ. Alternatively, Class B IFQ could be used to resolve these delivery coordination conflicts; however, use of Class B IFQ for this purpose could obviate their use by harvesters for additional negotiating leverage.

Strikes

One of the primary expectations of the Council in advancing the arbitration program was that “strikes” by the harvest sector would be avoided. Prior to implementation of the program, when harvesters had organized fleetwide strikes, delaying the start of fishing at the season opening, to induce processors to offer a higher price (NPFMC/NMFS, 2004b). By providing an arbitration option to harvesters it was thought that strikes, which could result in costly delays in deliveries of products to markets, could be avoided. Under the program, harvesters that are members of the inter-cooperative exchange, have organized strikes in a few instances. These strikes have targeted select processors that the group believed had offered an inadequate minimum price to be paid at the time of landing for A share deliveries. In these instances, harvesters had maintained the right to arbitrate under the ‘lengthy season approach,’ so the delays in fishing complemented any negotiating leverage derived from the arbitration system. Harvesters focused these strikes (or delays in fishing) on the price paid at the time of landing (prior to any adjustments for market sales by the processor). The price at landing is important to both sectors in that it serves as a minimum price. Under most pricing arrangements in the fishery, this minimum price is subject to an upward adjustment, depending on the price received by the processor when the crab is sold. From the harvesters’ perspective, the use of this pricing system and delays in fishing in this manner serve a few purposes. By reaching arrangements for a satisfactory minimum price, harvesters will reach a level of confidence to begin fishing, even if all pricing issues are not resolved. This enables production from the fishery to begin for markets that are time sensitive, most importantly the winter red king crab market in Japan. The use of delays in fishing to induce higher prices under this pricing structure also provides a signal to the market in general. Some participants believe that first wholesale prices often are reflective of

the ex vessel price received by fishermen. So, by improving ex vessel prices at the time of landing (even recognizing that those are minimum prices) the market for crab products receives a signal of the strength of the market for sellers. Whether the use of delays in fishing in this manner is detrimental depends on one's position in the fishery and whether these market effects actually occur. If first wholesale markets are boosted by the higher price at landing, it is possible that both sectors could benefit from this activity.

Pricing structure and its effects on incentives and risk

Under the pricing structure used by most participants in the fishery, harvesters receive a payment at landing that is the minimum ex vessel price that may be later supplemented based on the market price received for the crab production. This pricing arrangement is largely a function of the arbitration standard, which specifies that ex vessel prices should preserve the historic division of first wholesale revenues.⁵⁰ To maintain that division of revenues, harvesters receive a portion of the revenues from crab products sold into the market. This arrangement has a few effects on both the incentives and risk exposure of participants in the fisheries.

Prior to implementation of the program, participants negotiated in the preseason, usually arriving at a single dollar price that often applied to all landings in the fishery (see NPFMC/NMFS, 2004b). Under this arrangement of pricing, all market risk shifted to the processor on receipt of the harvest; the processor bore all costs and received all benefits arising from its production and market decisions. So, a processor's incentive to achieve success in the market was not distorted by any sharing of either the costs borne or benefits reaped from its decisions. Under the structure adopted for most landings currently, harvesters typically receive a minimum payment at delivery, which is supplemented by a share of first wholesale revenues in excess of an identified threshold amount. All post delivery costs, including handling, shipping, and storage costs, are typically borne by the processor. Under this arrangement, the processor bears risk of loss for sales that generate revenues that would result in an ex vessel price below the minimum price based on the sharing agreement. Under the new pricing arrangements, the processors' risk is likely less than under the former pricing structure. Under the former structure the processor bore all market risk after delivery. Under the new structure, the processors risk is reduced to the extent that the minimum price is discounted in comparison to the single dollar price that would have been accepted without the sharing arrangement. Harvesters share the risk in an amount equal to their share of the first wholesale revenues for the difference between the minimum price and the single dollar price that would have been accepted. Under this arrangement, the degree to which risk is shifted depends on two factors, the minimum price (and the difference between that minimum price and the single dollar price that would have been accepted with no revenue sharing) and the sharing of the revenues in excess of the threshold.

While sharing of risk is important to the distribution of benefits, the pricing arrangement also affects market incentives, which could affect production benefits. In a system in which prices are final on delivery, a processor's activities in the market are determined by its perception of the net benefit arising from those activities. An arrangement that shares benefits (but not costs) will distort that incentive. Instead of weighing the entire potential benefit against the costs, the processor will weigh its share of the benefit against any added costs. In this environment, a processor's decision to sell could come sooner, as it attempts to reduce its risk (and maximize its expected gain). At the extreme, a processor could pre-sell all of its production (i.e., contract for its sale prior to the season) to remove all risk. Although this practice may seem inappropriate, in some circumstances it may benefit all parties (i.e., if prices are fall a pre-season sale could bring the best price). In any event, the distortion of production and market incentives is an area of concern.

⁵⁰ The initial price formula developed for the golden king crab fisheries suggested this approach to pricing based on the arbitrators' interpretation of the arbitration standard (NEI, 2005).

In considering whether a modification to the arbitration structure (or the standard, which seems to have led to the structure), one should consider changes in contractual relationships driven by the parties that may address the perceived problem. Given that the incentive structure arises out of the system of sharing benefits realized after delivery, contract negotiations may be the best way to resolve any disputes. Reasonable parties could agree to a price that represents a lower portion of the realized first wholesale revenues in exchange for a higher minimum price on landing, shifting risk to the processor and firming up the processor's incentive to more aggressively pursue the best market opportunities. Alternatively, it is possible that reasonable parties with an established relationship could agree to greater market risk (or even cost) sharing with a lower minimum price. A relationship able to support this type of arrangement takes time to develop and may not develop in some instances. In addition, harvesters must feel confident that the processor will make appropriate efforts in pursuing market opportunities.⁵¹

As with other more subtle contractual issues, this issue could be overshadowed in arbitration proceedings, particularly in the first few years of the program. Even if the issue is central to an arbitration proceeding, the arbitrator will need to weigh the different interests appropriately in making a decision (i.e., balance the costs of holding inventory against the potential higher price that could be obtained by waiting to sell the product). The degree of uncertainty concerning market conditions and expectations make this a particularly challenging issue for an arbitrator. In any case, the participants in the fishery and the Council should be attentive to this issue in assessing the success of the program in the long run. The issue, however, does not lend itself to a simple solution, given the division of revenues standard.

Market information

To have reasonable confidence in negotiations and arbitration when applying a "division of first wholesale revenues" standard, both parties will need reasonable access to accurate information concerning those markets. Development of a protocol for sharing of information both among participants and with the arbitrator could be problematic, given the variety of relationships among harvesters and processors and the need for confidentiality of market information.⁵² The interest in confidentiality must be balanced against the need for an arbitrator to have access to reasonable information on both the participating processor's market activity and the market in general. Sales to affiliates and other possible below market sales arrangements could be important to distinguish to fairly impose the standard.⁵³ These data are necessary for both sales prior to the implementation of the program for the development of the historic division of revenues and for recent sales to apply the division to establish the annual division of revenues to landings in the fishery.⁵⁴ Under the current system, the arbitrator is left to decide the weight to apply to any information submitted (or the absence of or failure to submit information). Given the importance of this market information, a more grounded and consistent system to ensure availability of reasonable market information to the arbitrator could be desirable.

⁵¹ It is important to recognize that the "historic division of first wholesale revenues" standard is derived from average market success (or the average first wholesale price). While it is reasonable to insist that processors make legitimate efforts to pursue good markets, it is likely not reasonable to insist that all processors pay a division based on the highest first wholesale.

⁵² Any information sharing protocol must address both confidentiality and antitrust considerations. Some processors may be reluctant to share market information with harvesters to protect their market interests. To protect against anticompetitive behavior, precautions should be taken to ensure no market information is shared with any entity engaged in the sale of crab to similar markets.

⁵³ Depending on the circumstances, these data could be used for either the standard arbitration process or for performance disputes that could arise.

⁵⁴ Data limitations and confidentiality restrictions limit the utility of public data for establishing the historic division of revenues.

Complexity, Cooperatives, and the Inter-Cooperative Exchange

Among the greatest frustrations of participants (particularly harvesters) in the program is the complexity of the rationalized fishery. To some degree this complexity comes with a shift to a rationalized fishery. For example, in the pre-rationalization derby fishery, delivery timing was established by default by the season timing. To a large degree, however, the complexity arises from the system of A share/IPQ matching and the arbitration system. The information needs for effective price negotiations in the fisheries would increase in any transition to a rationalized fishery, as participants must resolve delivery and market timing issues. The elements of this rationalization program add to those information needs through an arbitration standard dependent on market pricing that at the same time accommodates the circumstances of delivery and participants. To address these complexities, many harvesters have organized their harvest activities in cooperatives and their price negotiations in an inter-cooperative collective. Cooperatives are used to coordinate fishing, with much of the communications concerning fishing schedules being undertaken by the cooperative leadership.⁵⁵ Cooperative leaders also participate in the inter-cooperative exchange, which represents its members in the arbitration process. Information sharing is one of the primary roles served by this coordinated effort. Participants in the inter-cooperative exchange are permitted to exchange market information, which can be used to bring the more comprehensive market information to negotiations with each individual processor. Given this ability, in some cases, the inter-cooperative exchange is likely to have better (or more complete) information about competing processors' activities, than the processor it is negotiating with. Costs (of acquiring information and negotiation) are also reduced by consolidation of this activity in a single entity.

The organization of activities in cooperatives and the inter-cooperative exchange has engendered some controversy. Some harvesters are frustrated that these representative entities have distanced them from decision making in the fishery. These frustrations to some extent are self imposed, as harvesters have voluntarily elected to enter cooperatives and the inter-cooperative exchange. Direct relationships with processors would be the best way to overcome this distance. Processors share some of the harvest sector's frustration, as they find themselves negotiating with representatives of harvesters, as opposed to the harvesters themselves. As with harvesters, the most effective way for processors to overcome this distance is through better direct relationships with harvesters. Some fishermen were frustrated by strong positions taken by processors during first year negotiations. Some perceived processor offers of higher minimum prices in exchange for waivers of arbitration rights as unfair. These relationships must be built on trust, which could take time to develop. The potential for these more direct relationships will also increase over time, as the effects of the arbitration process become more certain and predictable. In the early years of the program, it is not surprising that participants have adopted a more of adversarial approach in negotiations, as they attempt to influence the interpretation of the arbitration standard and the development of that process.⁵⁶

Notwithstanding any future efforts on the part of individual harvesters and processors to engage in more direct negotiation, cooperatives are likely to continue to have a large role in fleet coordination. Given the complexity of coordinating landings in the rationalized fishery (particularly the compounding of that complexity with A share/IPQ landing requirements), cooperatives are likely to be important for coordinating timing of fishing and landings. The need for the inter-cooperative exchange depends, in large part, on the extent to which participants develop relationships under which harvesters perceive little

⁵⁵ Some harvesters have expressed concern that delivery scheduling within the fleet is complicated by efforts of some harvesters (and cooperatives) to use scheduling to gain a competitive advantage over other members of the fleet.

⁵⁶ Some harvesters and processors have suggested that the processor-by-processor negotiations have contributed to the confrontational nature of negotiations. Harvesters are frustrated that processors are reluctant to simply follow the lead, matching high price offers. Processors, on the other hand, are frustrated that harvesters believe a single price in the fisheries is appropriate. The extended time available for negotiations (particularly under the lengthy season approach) has likely compounded this frustration.

advantage from their membership. In the near future, the entity seems very likely to continue in its current role. In the long run, it is possible that its role may evolve to primarily information sharing, with a less prominent role in negotiations. This evolution depends on the extent to which the arbitration system develops predictability and harvesters perceive that they are able to achieve reasonable success in direct negotiations with processors.

Costs of Cooperatives and Arbitration

Many participants in the program are concerned that the costs of the program are excessive. Cooperative memberships, the inter-cooperative exchange, arbitration organization fees, and the administrative costs of the arbitration system all add to the costs of participation. Many harvesters have expressed concern that costs of the arbitration system (including the dues paid to cooperatives and the inter-cooperative exchange) and cost recovery program, remove an excessive amount of revenues from the fishery.

The annual costs of the arbitration organizations and arbitration administration are unavoidable, but could decline over time as the administrative aspects of the arbitration system become more established. Arbitration organization fees are borne by members of the organization. The arbitration organization for harvesters that have no processor affiliation (i.e., independent harvesters) charges each member \$500.⁵⁷ Costs of membership for the processor and affiliated harvester organization are not known, but are likely to be greater on a per member basis because the sector has fewer share holders over which to disburse costs. By regulation, arbitration administrative expenses are split evenly between the harvester sector and the processing sector. Processors advance the costs, recouping the harvesters' half of the expenses through an assessment on landings. In the first year of the program, participants in the harvest sector were assessed a penny per pound on each delivered pound to cover the one-half of the estimated arbitration administration expenses (estimated at approximately \$235,000). This assessment collected approximately \$450,500 in the first year. These collections substantially exceeded one-half of the actual arbitration administration costs (approximately \$162,000). The remainder is being applied to the current year's arbitration administration costs. As a result, harvesters are paying no fee for arbitration organization expenses this year. Considering the first year's experience, it is likely that administrative costs of the arbitration program will remain less than one-half cent per pound in the future.⁵⁸

Cooperative memberships have also added costs for a large portion of the harvest fleet. These groups are likely beneficial under any rationalization for coordination of harvest activity. Yet, a portion of the activities (and costs) of cooperatives in this program arise from the added need to match A share IFQ to IPQ. A portion of the harvest sector has elected not to join cooperatives, saving on these expenses. Others have likely minimized the added costs of cooperative membership by using existing corporate structures for managing cooperative activities. Given the variation across participants and the confidentiality of this information, no information on the magnitude of these costs is available at this time.⁵⁹

Many harvesters view participation in the inter-cooperative exchange as necessary and beneficial at this time. Membership in the inter-cooperative exchange is reported to be stimulated by both the complexity of the arbitration system and the relatively large portion of the harvest allocation (90 percent) that is subject to the IPQ landing requirements and arbitration. Many fishermen believe that accountants and lawyers are necessary to guide negotiations due to the complexity of the system and the expense of

⁵⁷ Because of the different information needs of non-affiliated harvesters and the need to limit flow of that information to affiliated harvesters, separate arbitration organizations are mandated by regulation.

⁵⁸ Although typically much larger entities than harvesters, processors are not permitted to participate collectively in arbitration. So, each processor must fully fund its own participation in arbitration.

⁵⁹ Economic data collection reports include information concerning cooperative costs. Once issues concerning data quality and confidentiality have been adequately addressed in the handling and use of those data, information concerning cooperative costs may be available.

gathering market information needed for effective negotiation. The structure of the inter-cooperative exchange has helped distribute these costs, through general membership dues charged based on share holdings. Persons are charged these dues regardless of whether the person's shares are subject to specific negotiation disputes or arbitration.⁶⁰ The exact level of these charges is confidential to the group; however, one can assess the potential funding by considering the penny-a-pound landing fee that funds the arbitration system's administration. Based on this consideration, it seems quite reasonable for harvesters to join the inter-cooperative exchange (at its current membership level), if they believe the group increases ex vessel prices by even a few cents per pound.

Notwithstanding that the inter-cooperative exchange may be a cost effective organization, some participants believe free riding by non-members occurs. Free riding occurs if non-members of the inter-cooperative exchange are able to obtain the inter-cooperative exchange's settled price by simply approaching the processor independently after the inter-cooperative exchange has completed negotiations; the non-member receives the benefit of the inter-cooperative exchange's efforts without paying for membership. Since membership in the inter-cooperative exchange is fully voluntary, moral arguments and peer pressure are the only barriers to free riding behavior. Processors may perceive this free riding as beneficial and may wish to encourage it for a few reasons. To the extent that they believe that the inter-cooperative exchange succeeds in price negotiations, inducing more harvesters to leave the organization could reduce its funding (and effectiveness). Along the same lines, processors may wish to induce persons to leave the organization, if they believe that negotiations with the inter-cooperative are more contentious or hurt their relationships with their fleets. Whether membership of the group is likely to decline in the future is uncertain. Harvesters may be expected to remain in the organization as long as perceive it as beneficial. Given the market information requirements of negotiations in the fishery, it seems likely that harvesters will perceive a benefit from the inter-cooperative exchange in the future. Funding can be expected to parallel the scope of activities of the organization, so that if its activities change focus to mostly an informational purpose, one could expect its costs to decline.

Conclusion

Given the Council's conflicting purposes when adopting this program, the extent to which the 90/10 A share/B share split and arbitration program are meeting the Council's intent cannot be estimated with precision. At this early stage, the most that can be said is that opinions and concerns vary. Many participants from both sectors (but not all) believe that the program is a substantial improvement on the pre-rationalization fishery. Some of the current dissatisfaction is fueled by the uncertainty and costs of operating in the new program. Over time, this uncertainty should dissipate. Costs should also decline over time, but some additional costs will persist. In evaluating whether any action is needed to rectify any perceived shortcomings in the program, the Council should assess whether a perceived shortcoming is likely to resolve itself over time.⁶¹ Amending elements in an attempt to address issues that are likely to resolve themselves over time could exacerbate uncertainties, rather than resolve those issues. If the Council, however, perceives that shortcomings are likely to persist, those problems should be addressed expeditiously.

⁶⁰ Given the negotiation strategy of using one processor's offer to induce other processors to match the price, this distribution of charges is generally perceived as fair and beneficial by inter-cooperative exchange members. The incentive to arbitrate, in turn, is likely affected to the extent that those costs are shared by persons that are not party to the arbitration. To the extent that success in arbitration boosts prices from other processors (either through the feedback of the formula in the following year or through the general reputation for success) non-parties who are members of the inter-cooperative exchange likely benefit from and support those proceedings despite the costs.

⁶¹ The Council should also assess the potential motivations for industry opinions concerning the program, including the potential for participants to seek to redistribute benefits under the program.

Analysis of the B share and C share landing patterns

This section of the paper examines the second issue on which the Council requested information, the landing patterns of B and C shares, in comparison to landing patterns of A shares. In the development of the program, the Council elected to exempt catcher vessel C shares (the three percent of the harvest share allocation issued to captains for exclusive use by active captains and crew) from the 90/10 A share/B share split and regionalization landing requirements for the first three years of the program.⁶² This exemption is intended to provide holders of those shares with flexibility necessary to coordinate landings in the first few years of the program, when participants are likely to be adapting to the new program and rules governing the fishery and share use. Realizing that the effects of the program are not wholly predictable, the Council elected to examine landing patterns of the C share allocation as a part of this report and to consider whether the application of the A share/B share 90/10 split to C shares is necessary for the program to achieve its intended effects. Additionally, some observers have questioned whether the distribution of landings of B and C share harvests differ from the distribution of A share landings. B and C shares (as shares that are not subject to the A share IPQ landing requirements) can be delivered to any location, which could result in a distribution of processing activity that is different from the A share allocation. This section begins with a brief description of the C share allocation and rules governing those shares. The section then goes on to describe landing patterns of C shares, in comparison to A and B share landings patterns.

The three percent of the initial allocation of “C share” QS was issued to captains based on their harvest histories. Annual allocations of C share IFQ are subject to an owner-on-board requirement and a prohibition on leasing to ensure that these shares benefit active captains and crew. These two provisions, however, do not apply during the first three years of the program to allow for participants to adapt to the new management structure (see 50 CFR 680.41(e) and 50 CFR 680.42(c)(5)).⁶³

To ensure captains are an integral part of the overall fishery, C share holders are permitted to join cooperatives (see 50 CFR 680.21(a)(1)). As incorporated into regulation, this provision effectively removes any prohibition on leasing of and owner-on-board requirements for C shares. Once a C share QS holder joins a cooperative, any IFQ are allocated to the cooperative. The leasing prohibition and owner-on-board requirements apply only to individual holders of C share IFQ; separate use provisions apply to IFQ held by a cooperative (see 50 CFR 680.21(c)(2)).⁶⁴ In the current fisheries, the holders of approximately 75 percent to 95 percent of the C shares by fishery are cooperative members (see Table 11). Although not directly at issue in this discussion paper, in considering whether the C share allocation should be exempt from the A share/B share 90/10 split, the Council should consider the rules governing use of these shares. Part of the rationale advanced for the exemption of these shares from the IPQ landing requirements is that the logistical complications of complying with IPQ landing requirements, owner-on-board requirements, and leasing prohibitions would be excessively complicated and could severely diminish the value of these shares to their holders. If the owner-on-board provisions and leasing prohibitions are effectively inapplicable to these shares that argument would seem not to apply. On the other hand, C shares are a relatively small part of the overall harvest share allocation (3 percent). In the large fisheries, no person is permitted to hold in excess of 2 percent of the shares pool, effectively limiting a person’s C share holdings to 0.06 percent of the harvest share pool. Constraining these shares with the IPQ landing requirements would decrease the value to their holders. This decline in value could be

⁶² Since landing requirements do not apply to catcher processor shares, this discussion does not apply to catcher processor shares. In an attempt to make this paper more readable, the words “catcher vessel” are omitted hereafter.

⁶³ Although the owner-on-board exemption is not explicitly created, by allowing leasing of C share IFQ for the first three years of the program, a holder of those shares is effectively relieved of the owner-on-board requirement.

⁶⁴ If the Council considers future changes to provisions governing C share acquisition and use, it should consider that the effects of these provisions on its intention to establish the C share allocation for exclusive use by active participants in the fisheries.

critical, if the holders of C shares do not hold other shares and are intended to have increased negotiating leverage through their holdings of C shares.

Table 11. Catcher vessel C share IFQ held by cooperatives (2006-2007).

Fishery	Catcher vessel captain and crew IFQ		Percent of vessel captain and crew IFQ held by cooperatives
	held by cooperatives	in total	
Bristol Bay red king crab	350,720	402,768	87.1
Bering Sea <i>C. opilio</i>	817,980	929,338	88.0
Eastern Bering Sea <i>C. bairdi</i>	35,133	46,358	75.8
Western Bering Sea <i>C. bairdi</i>	20,496	27,047	75.8
Eastern Aleutian Islands golden king crab	76,855	80,075	96.0
Western Aleutian Islands golden king crab	38,303	41,914	91.4

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2006-2007.

Addressing the share matching complexities of the A share/B share split that would apply to C shares will require coordinating the use of C shares on a vessel with the use of other shares by that vessel. So, the C share holder will not only need to negotiate landings with the IPQ holder, but will also need to ensure that the terms of deliveries of the C shares are coordinated with the terms of delivery for any other shares fished by the vessel. This coordination is likely to mean that the primary share holder for the vessel will determine deliveries locations and timing, as C shares are likely to be a small portion of the shares fished by the vessel. Achieving this coordination will be greatly simplified through cooperative management of the shares. Given this coordination benefit, it is likely that most holders of C shares will join a cooperative to comply with the 90/10 A share/B share split. This cooperative fishing of C shares is likely to reinforce the tendency of C share holders to enter cooperatives, which under current rules effectively exempts the shares from the owner-on-board requirement.

Landings data are available only for the first year of fishing under the rationalization program. Table 12 shows the total catcher vessel landings in the first year of the program by share type. The table shows that in most fisheries, the percentage of unharvested C shares is similar to the percentage of unharvested A and B shares. The Bristol Bay red king crab fishery (where C shares make up slightly less than 3 percent of the harvest) and the Western Bering Sea *C. bairdi* fishery (where almost one-half of the C share allocation was left unharvested) are the exceptions. These data suggest that holders of vessel owner shares have not displaced C shares (or reduced their priority at landing). Since C share IFQ are not subject to owner-on-board requirements or limits on leasing and the shares are held by cooperatives, the use of these shares in similar proportion to vessel owner shares is not surprising.

Table 12. Catcher vessel landings by share type (2005-2006).

Fishery	Catcher vessel landings						Total	Catcher vessel IFQ allocation	Percent of catcher vessel IFQ harvested
	A shares		B shares		C shares				
	pounds	as percent of all landings	pounds	as percent of all landings	pounds	as percent of all landings			
Bristol Bay red king crab	13,689,235	87.5	1,496,448	9.6	454,266	2.9	15,639,949	15,749,357	99.3
Bering Sea <i>C. opilio</i>	26,131,999	87.3	2,894,774	9.7	896,434	3.0	29,923,207	30,445,647	98.3
Western Bering Sea <i>C. bairdi</i>	689,390	92.6	43,870	5.9	11,060	1.5	744,320	1,358,759	54.8
Eastern Aleutian Islands golden king crab	2,113,978	87.4	229,164	9.5	76,909	3.2	2,420,051	2,573,307	94.0
Western Aleutian Islands golden king crab	1,084,179	87.4	115,462	9.3	40,903	3.3	1,240,544	1,309,454	94.7

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

Limitations on data release to protect confidentiality and the relatively few processors participating in the crab fisheries prevent revealing much direct information concerning landing patterns. Table 13 shows the

number of processors receiving a larger portion of the total C share deliveries in a fishery than its portion of the A share deliveries and the difference in C share deliveries and A share deliveries received by those processors in the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries.⁶⁵ The table shows that in the Bristol Bay red king crab fishery, four of the ten active processors received a greater share of the delivered C shares than delivered A shares. These processors received in excess of 60 percent of C share deliveries, while receiving only 18 percent of the A share deliveries. Similarly, in the Bering Sea *C. opilio* fishery, 4 of the 10 active processors received a larger share of C shares landings than A share landings, taking delivery of almost 60 percent of the C share landings, but only 32 percent of the A share landings. While these differences are substantial as percentages, the quantity of crab redirected by these landings was less than 250,000 pounds in both fisheries. These data suggest that landings of C shares are not following landings of A shares, but appear to be following a pattern of their own. Notably, in both the Bering Sea *C. opilio* and Bristol Bay red king crab fisheries one processor that received no landings of crab harvested with A shares took delivery of crab harvested with C shares.

Table 13. Processors that received delivery of a larger portion of the C share deliveries than their portion of A share deliveries (2005-2006).

Fishery	Number of processors in fishery	Processors with a larger share of C landings than A landings					
		Number of processors	Percentage of C share landings by these processors	Percentage of A share landings by these processors	Difference between percent of C share landings and percent of A share landings with these processors	Percentage difference as pounds of C shares	Poundage difference as a percentage of all catcher vessel landings in the fishery
Bristol Bay red king crab	10	4	61.0	18.2	42.8	194,375	1.2
Bering Sea <i>C. opilio</i>	10	5	59.3	32.4	26.8	240,643	0.8

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

Table 14 shows the number of processors that received a greater percentage of B share deliveries than A share deliveries in the Bristol Bay red king crab, Bering Sea *C. opilio*, and Western Bering Sea *C. bairdi* fisheries in the first year of the program.⁶⁶ As with C share landings, processors that received a greater portion of the B share landings than A share landings by fishery received a substantially greater percentage B share landings than A share landings. Since B shares are a significantly larger part of the overall harvest share allocation than C shares, the difference in distribution of B share landings and A share landings is more significant (e.g., almost three-quarters of one million pounds in the Bering Sea *C. opilio* fishery). In addition, in the Bristol Bay red king crab, Bering Sea *C. opilio*, and the Western Bering Sea *C. bairdi* fisheries, one processor that received no deliveries of A share harvests received deliveries of B share landings. The significance of the difference in landing patterns is uncertain. Crab prices were at extremely low levels during the year, which may have led some of PQS holders to forgo B share landings.

⁶⁵ Similar information could not be provided for other fisheries because of confidentiality limitations.

⁶⁶ Similar information could not be provided for other fisheries because of confidentiality limitations.

Table 14. Processors that received delivery of a larger portion of the B share deliveries than their portion of A share deliveries (2005-2006).

Fishery	Number of processors in fishery	Processors with a larger share of B landings than A landings					
		Number of processors	Percentage of B share landings by these processors	Percentage of A share landings by these processors	Difference between percent of B share landings and percent of A share landings with these processors	Percentage difference as pounds of B shares	Poundage difference as a percentage of all catcher vessel landings in the fishery
Bristol Bay red king crab	10	3	56.7	11.2	45.5	680,692	4.4
Bering Sea <i>C. opilio</i>	10	5	59.9	32.4	27.5	796,448	2.7
Western Bering Sea <i>C. bairdi</i>	7	4	74.3	41.5	32.8	14,406	1.9

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

To the extent permitted by confidentiality rules, Table 15 compares the landings by share type across various communities. The table shows that King Cove and Kodiak received a slightly greater percentage of B share and C share landings than A share landings in the first year of the program. In pounds this difference in the distribution of landings by share type is quite nominal – taken together amounting to approximately 50,000 pounds of additional crab being delivered to the two communities.

Table 15. Landings by community by share type in the Bristol Bay red king crab fishery (2005-2006).

Bristol Bay red king crab	Landings by share type								
	A shares			B shares			C shares		
	pounds	percentage of share type	percentage of catcher vessel shares	pounds	percentage of share type	percentage of catcher vessel shares	pounds	percentage of share type	percentage of catcher vessel shares
Community									
Dutch Harbor/Akutan/St Paul/Sitka/Floater	10,463,192	76.4	66.9	1,098,354	73.4	7.0	339,211	74.7	2.2
King Cove/Kodiak	3,226,043	23.6	20.6	398,094	26.6	2.5	115,055	25.3	0.7

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

Table 16 shows the distribution of landings by share type in the Bering Sea *C. opilio* fishery in the first year of the program. The table shows greater variation in landings by community across share types, particularly for Dutch Harbor and Akutan, which together received a substantially greater share of the B share and C share landings than A share landings. Confidentiality limitations prevent disclosure of more information on landings.⁶⁷

Table 16. Landings by community by share type in the Bering Sea *C. opilio* fishery (2005-2006).

Bering Sea <i>C. opilio</i>	Landings by share type								
	A shares			B shares			C shares		
	pounds	percentage of share type	percentage of catcher vessel shares	pounds	percentage of share type	percentage of catcher vessel shares	pounds	percentage of share type	percentage of catcher vessel shares
Community									
Dutch Harbor/Akutan	12,148,049	46.5	40.6	1,990,961	68.8	6.7	684,132	76.3	2.3
St. Paul	7,191,425	27.5	24.0	*	*	*	71,829	8.0	0.2
King Cove/Kodiak	*	*	*	349,472	12.1	1.2	114,502	12.8	0.4

* withheld for confidentiality

Note: Landings by floating processors are omitted.

Source: NMFS Restricted Access Management IFQ database, crab fishing year 2005-2006.

⁶⁷ Approximately 16 percent of the PQS issued in the fishery were subject to a designation of either Aleutians East Borough or Kodiak that requires processing in the designated community during first two years of the program. Only 6 percent of the PQS were issued to a King Cove or Kodiak based processors suggesting that (in the absence of substantial IPQ transfers to the communities) a considerably greater percentage of B and C shares were landed in these communities than the percentage of A shares.

Conclusion

In the first year of the program, the distribution of landings of C shares appears to more closely follow the landing pattern of B shares than A shares. Since C shares are exempt from owner-on-board requirements and leasing prohibitions, this finding is not surprising. In considering whether this redistribution of landings merits application of the A share/B share split to C shares, the Council should assess several factors. C shares are a relatively small portion of the total allocation of harvest shares – 3 percent. The potential for redistribution of these landings to harm established processing interests could be questionable. In addition, the application of the A share/B share split to these shares, in conjunction with the owner-on-board requirement, could substantially complicate use of these shares by their holders. The ability of captains and crew to obtain any negotiating leverage from the small, restricted allocation is questionable. On the other hand, the current regulations governing these shares exempt cooperative members from owner-on-board requirements. Given this flexibility, most C shares are likely to be used in a manner similar to B shares in the future. In deciding whether to reconsider the application of the A share/B share split to C shares, the Council should weigh the interest of C share holders in greater flexibility in the use of their shares against the interests of established processors (processor share holders) in the supply of those C share landings.

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