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September 24, 2007

Mr. Donald K. Hansen, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Re: Groundfish trawl rationalization

"We need to consider endowing communities (or regions) first and then letting the magic of individual initiative flourish underneath these community endowments rather than trying to tack "community protection" measures onto programs focused on permanent individual allocations." Seth Macinko

Dear Chairman Hansen,

Thank you for the opportunity to offer comments on behalf of the Pacific Marine Conservation Council (PMCC).

PMCC is a West Coast wide nonprofit conservation organization now in our tenth year. Founded by a group of progressive fisherman, marine scientists, and conservationists we undertake activities that link Science, Policy, and Community to benefit the marine environment and the people and livelihoods connected to the sea. Our mission is focused on conserving healthy and diverse fisheries and marine ecosystems, and the coastal communities that depend upon them.

As you are aware, PMCC has continuing concerns that the potential benefits of the rationalization schemes under consideration may not be realized, and that social and economic harm to coastal communities could be an unintended result. In addition, unless the rationalization is carefully designed, the system could work to the detriment of marine ecosystems.

PMCC would prefer to see a comprehensive rationalization plan for the groundfish fishery that is designed to achieve conservation outputs, with clear incentives to reward fishermen for superior environmental performance. We are also interested in scaling down management to better support regional and community stewardship.

We realize that multi-sector alternatives are unlikely to be considered at this time, so we are herein offering recommendations features for analysis in the trawl rationalization and inter-sector allocation environmental impact statements. A robust analysis of these and other features will not only help to inform decisions related to the trawl rationalization, but will also provide support for future development of sustainable fishing plans.

We appreciate the commitment of the rationalization program designers to conform to the new limited access privilege (LAP) standards in the re-authorized Magnuson-Stevens Act (MSRA). Although regulatory guidance is still forthcoming, we see the following as basic requirements:

- Improve compliance with the conservation objectives of the MSA
- Allocate quota shares fairly among fishery participants
- Prevent excessive consolidation of quota shares by individuals or companies
- Protect the access of coastal fishing communities
- Preserve owner operators and working fishermen
- Provide fishing opportunities for new entrants
- Establish clear and measurable program objectives
- Include adequate monitoring and enforcement mechanisms to ensure that program objectives are achieved
- Contain a cost recovery mechanism

Many of these requirements are already being addressed, but I'll highlight a few features that PMCC sees as priorities.

Spatial components: PMCC sees the utmost importance of managing based on the best scientific information available regarding the ecology of fish populations and the dynamics of marine ecosystems. Area-specific allocations should be made at the onset of the program, as supported by current assessments. Additional area subdivision should also be executed in anticipation of emerging science, especially if there is also a ancillary benefit in preserving local community access to fishing grounds.

We can learn from British Columbia's individual vessel quota program, where area-based quota was issued. It stands to reason that consolidating quota in the future will be less disruptive than splitting it up. Nonetheless, future sub-division of quota by geographical area should be anticipated and accommodated in the system planning.

The analysis within the trawl rationalization EIS would presumably weigh the relative risks of not implementing area-based features versus developing a system that incorporates what we currently know and simplifies adaptive response.

Measurable conservation benefits: Conservation is the driver of this process. I believe that we all can agree about that, even though it sometimes gets lost amongst calculations of the initial windfall that individual businesses might expect.

Bycatch management in particular was a fundamental part of the rationalization process from the beginning. Documenting encounters with overfished species is one way to evaluate whether or not the rationalization is furthering the conservation goals of the MSRA and assisting with rebuilding as required by the Act.

Community impacts: Projected and possible adverse impacts to coastal communities, regardless of whether they receive trawl landing, should be fully evaluated. Mitigation should be provided for anticipated impacts, and quota set-asides or other accommodations should be built into the program to offset unanticipated consequences.

Trawl business impacts: We expect that there will be a vessel by vessel analysis of the initial allocation and added costs (observer and other recoverable program expenses.). This is just basic information that should be provided to fishermen so they can evaluate whether the rationalization or its features make sense to them. One concern is that some small operations will no longer be economically viable, even though the participants want to continue as active fishermen.

This type of data should be provided to fishermen as early in the process as possible. The public should also be provided with an aggregation and summary of this information, preserving confidential financial information.

Consolidation: Clear adequate limitations on control of quota shares, not just ownership or initial distribution.

New entrants: The implementation of a quota system will likely be socially disruptive, especially to the traditional relationships among owners, skippers and deckhands. If one party is to receive a government windfall, then fairness dictates that the program provide reasonable means for new participants to enter the fishery and to accumulate quota.

Future rationalization: The design of the program should include provisions to incorporate development of other LAPs, including:

- Provisions that anticipate and prepare for future rationalization of other sectors of the groundfish fishery, and integration of these participants into the conservation incentive programs. Ultimately, there should be a seamless flow of incentives that provide enhanced opportunities for those demonstrating the best conservation practices.
- Provisions that anticipate and prepare for future area-based LAPPs. As community stewardship areas and sustainability plans develop there should be no new impediments due to features in the trawl rationalization.

Thank you for considering our comments. I am available to answer your questions or discuss these matters at: (503) 325-8188 or email peter@pmcc.org.

Respectfully submitted,



Peter Huhtala
Senior Policy Director

October 17, 2007

Mr. Donald K. Hansen
Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

Dear Chairman Hansen and members of the Pacific Fisheries Management Council,

The Morro Bay Commercial Fishermen's Organization represents the fishermen and fisherwomen of Morro Bay, and naturally has an interest in maintaining our Port and our City as a fishing village. We are writing to ask you to retain for analysis in the upcoming DEIS for the groundfish trawl fishery the adaptive management trust option which could help meet adaptive management and public trust objectives. This mechanism, which would be funded by holding back a small portion of the quota, will serve as an insurance policy for the program and will help ensure that social conservation goals are met.

While adoption of an individual quota program is likely to create significant economic benefits, we are concerned about possible economic disruptions in vulnerable ports and fishing communities. We are also concerned about unanticipated impacts that arise whenever there is a major shift to a new management system. **Because Morro Bay is a remote Port, and access to fishing grounds outside of the Rockcod Conservation Area are 18 miles seaward of our Port, and open access poundage allocation at much reduced levels, Morro Bay has had a very difficult time in landing any**

significant amount of fish across its docks. The expense of fuel, and the transit time required to access areas outside of the RCA, and the levels of allocation have put much of the fishing beyond the reach of our people here for many years. An alternative capable of addressing known concerns, as well as remedying unanticipated impacts that the current alternatives are unprepared to address, would help ensure that the transition to the quota system creates tangible benefits for the greatest number of people.

Please retain for inclusion in the analysis this alternative capable of meeting adaptive management and public trust purposes, which will enhance the program's ability to meet important social and ecological objectives.

Sincerely,

Jeremiah O'Brien
President of the Morro Bay Commercial Fishermen's Organization

October 17, 2007

Mr. Donald K. Hansen
Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

Dear Chairman Hansen:

I am writing on behalf of the owner of the P/V Excellence regarding the proposed eligibility requirements for mothership participants in the Pacific Whiting Fishery. I learned about this item last week as the Ad Hoc TIQC was about to meet in Seattle. I apologize for not being better informed of your consideration of these issues, but I had no knowledge that you were about to consider rules that would prevent the Excellence from continuing to provide a market for catcher vessels in the whiting fishery as it has in every year since the early 1990's.

As I understand the proposed language in the coop alternative, it would alter the mothership definition that the Council previously adopted to remove the right to process whiting away from the Excellence, and place it into the hands of the company that currently charters the vessel. It would also exempt them from US ownership requirements that would apply to every other operator in the fishery. The Excellence is owned by AJVS, Inc., and is 100% US owned. I believe that the Excellence is the only mothership in the whiting fishery that is under charter. The charter will expire at the end of 2009.

This proposed language would only affect our vessel, as we are the only operation where the proposed language would remove coop processing rights or IFQ's from the mothership vessel that has been operating in the fishery.

We have not had an opportunity to present our views on this matter, and would respectfully request that we have the opportunity to do so prior to consideration of any issues before the Council that would affect the Excellence's ability to continue to provide a market for catcher vessels in the whiting fishery.

Thank you for your consideration.

Sincerely,

William D. Phillips

Allocations of Harvesting Quota in the Shore-based Whiting Fishery

By Christopher C. Riley & Joseph T. Plesha*

The Pacific Council is in the process of examining the possibility of rationalizingⁱ the Pacific whiting fishery through an individual quota-based management system. As part of this process, the Council must decide who will receive allocations of harvesting quota. But tens of millions of dollars have already been invested in harvesting and processing Pacific whiting. When the whiting fishery is rationalized about ninety percent of the value of fishing vessels and processing plants will be taken from their owners and given to those who receive allocations of quota. This paper describes how that expropriation occurs and argues that owners of fishing vessels and processing plants should receive allocations of quota to compensate for the expropriation of their investments.

I. Introduction

Recently enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Actⁱⁱ directed the Pacific Fishery Management Council to “develop a proposal for the appropriate rationalization program for the Pacific trawl groundfish and whiting fisheries, including the shore-based sector of the Pacific whiting fishery under its jurisdiction.”ⁱⁱⁱ Under this Congressional direction, the Pacific Council is analyzing rationalization of the groundfish and whiting resources through allocations of harvesting quota to private entities.

Fishery managers understand that private ownership^{iv} of fishery resources is essential to maximize efficient utilization of those resources. But these efficiency gains are realized regardless of who is allocated ownership of harvesting quota.

As an example, the pollock Community Development Quota program in the North Pacific allocates ten percent of the Bering Sea pollock Total Allowable Catch to villages in Western Alaska. These CDQ communities had no involvement (initially, at least) in the pollock fishery. The pollock quota allocated to CDQ communities was simply leased by those communities to companies involved in the pollock fishery. It was very similar to an auction, as the CDQ communities generally leased their pollock quotas to the highest bidder. Because the fishery was rationalized — albeit into the hands of entities that were outsiders to the fishery — the harvesting and processing of CDQ pollock was as efficient as if a pollock company itself owned the quota.

So far the Draft Trawl Individual Quota Environmental Impact Statement generally examines why rationalizing the fishery will result in greater efficiency. The EIS lists the goals of the program as (1) increase regional and net national benefits; and (2) achieve

capacity rationalization through market forces. The EIS lists the program's objectives as (1) provide for a profitable fishery; (2) minimize negative ecological impact; (3) reduce bycatch; (4) promote individual accountability; (5) increase operational flexibility; (6) minimize adverse effects on fishing communities; (8) promote economic and employment benefits; (9) provide quality products to the consumer; and, (10) increase safety. The EIS explains why the proposed rationalization program meets the goals and objectives and is thus more efficient than the existing management system. But *any* allocation of harvesting quota will achieve the goals and objectives in the EIS, regardless of whether the initial recipients of the quota are vessel owners, processing plant owners, coastal communities, the federal government, or taxi cab drivers from New York City.

The National Environmental Policy Act requires an examination of the direct and indirect effects of any allocation.^v Because the efficiency gains of rationalization occur regardless of who receives initial allocations of harvesting quota, NEPA requires more than an analysis of why rationalizing the whiting fishery will meet the listed goals and objectives: NEPA requires an examination of why one particular allocation of harvesting privileges is preferable over another potentially reasonable allocation. Even though the most controversial aspect of this proposal is the initial allocations of harvesting privileges, the EIS does not yet contain an analysis of why one particular allocation of quota is better than another.

At its March meeting the Pacific Fishery Management Council chose to analyze allocations of whiting quota to both limited entry permit holders^{vi} and owners of processing plants. The purpose of this paper is to examine why the Council's proposed allocation of quota to both vessel owners and owners of primary processing facilities in the shore-based whiting fishery is appropriate.^{vii}

II. Proposed Allocations of Quota In The Shore-based Whiting Fishery

With regard to the shore-based sector of the Pacific whiting fishery, the Council is analyzing two alternatives:

- Allocating quota to owners of limited entry permits and the owners of whiting processing plants; and,
- Allocating quota to owners of limited entry permits who have formed "cooperatives" that require some form of linkage to the whiting processing plants to which the permit holders historically deliver their harvests of whiting.

It is important to note that "fishermen" are not being considered to receive allocations of quota. Those under consideration to receive allocations of harvesting quota in the whiting fishery are either owners of vessels (or a surrogate for vessels, limited entry permits) or owners of processing plants.^{viii}

In fact, the potential recipients of whiting quota are virtually all corporations. Just as an example, below are the limited entry permit owners and whiting processing plant owners for 2006. (It is not known if these entities would receive allocations under the proposed alternatives. The list is provided solely as an example of the type of recipients of quota under the proposed alternatives.)

Limited Entry Permit Owners Harvesting Whiting (2006)	Processing Plant Owners Processing Whiting (2006)
Bay Islander Inc. Blue Moon Fisheries, Inc. Blue Sea Fisheries, Inc. Jay Bornstein California Shellfish Company, Inc. Captain Andy Fisheries, Inc. Cassandra Anne, LLC Chellissa Fisheries, Inc. DASL Inc. Ex-1 Corporation Fury Group, Inc. F/V Jeanette Marrie, Inc. F/V Pacific, Inc. F/V Seeker, Inc. George Allen, Inc. Gerald Gunnari HB Lee, Inc. Hodges and Moreland Fishing, Inc. Hunters Offshore Enterprises, Inc. Jamie Marie, Inc. James Shones Lisa Melinda Fisheries, Inc. Lloyd Whaley Mark I, Inc. Marathon Fisheries, Inc. Marion Larkin Mark Cooper Miss Sue Fisheries, Inc. Miss Berdie, Inc. Muir Milach, Inc. Nicole Fisheries, Inc. North Sea, Inc. Pacific Draggers, Inc. Pacific Dawn, LLC Patience Fisheries, Inc. Pacific Future, LLC Ralph Brown	Alber Seafoods, Inc. Bornstein Seafoods, Inc. Da Yang Seafoods, Inc. Del Mar Seafoods, Inc. Jessie's Ilwaco Fish Co. Ocean Gold Seafoods, Inc Ocean Beauty Seafoods Corporation Pacific Seafood Group Trident Seafoods Corporation

Raven Enterprises, Inc. Yaquina Trawlers, Inc.	
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III. Rationale For Proposed Allocation Alternatives

It has been argued that because our Nation's fishery resources belong to the general public,^{ix} the general public should receive the full economic benefit from fishery resources when they are rationalized. This result could be accomplished by a simple auction, which is authorized by the Magnuson-Stevens Act.^x

If a large stock of cod were suddenly discovered off a remote U.S.-owned island in the Pacific ocean, and fishery managers wanted to privatize it, the Federal government would likely auction the rights to this undeveloped cod resource rather than allocate rights to vessel or processing plant owners based in California, Oregon or Washington state.

So why allocate fishing rights to private entities at all when the fish actually belong to the general public?

In a fully-capitalized, open-access fishery, where the harvest is controlled by a single quota the participants race to exploit, a portion of the investments in fishing vessels and processing plants that are specific to the fishery being rationalized and that are also relatively durable and non-malleable, will be lost as a result of the rationalization. This lost value re-appears in the value of the quota shares. Wealth is unavoidably transferred from the fixed capital of processing plants and fishing vessels to the owners of the quota.

When such a fishery is rationalized, owners of fishing boats and processing plants can suffer enormous financial losses. The amount of the loss depends upon the extent of the initial overcapitalization and the durability of the non-malleable capital involved. Owners of such capital can expect no return on their capital, regardless of finished product prices. During the transition between the open access and privatized fishery equilibrium conditions, 100% of the expected return on all of these non-malleable capital investments in primary processing and harvesting is actually *transferred* to the new quota owners. So if the government were to auction the rights to the whiting fishery, it would be auctioning not only the rights to the economic value of the fishery resource itself, but also most of the value of the existing private investments made to harvest and process that fishery resource!

Roughly based on the Pacific whiting fishery, the following is a hypothetical example to help demonstrate the impacts that rationalizing a fishery will have on owners of harvesting and processing capacity.

There are two basic types of investments made in the primary production of seafood: investments in harvesting capacity and investments in processing capacity.^{xi} Figure 1 is

an industry profile showing the hypothetical operating characteristics of the harvesting and processing sectors and the characteristics of the fishery they prosecute.

Figure 1. Basic Characteristics of the Fishery

Resource.

* Annual Quota (in metric tons)	100,000
* Potential (Biological) Season Length (in days)	180

Harvesting.

* Catch Capacity per Vessel (in MT per day)	70
* Variable Harvesting Cost (in \$ per MT)	\$70
* Capital Cost (per Vessel)	\$2,000,000
* Interest Rate on Capital (also discount rate)	8%
* Depreciation ^{xiii} of Harvesting Capacity (in years)	15
* Fish Price (in \$ per MT)	\$143.3

Processing.

* Processing Capacity per Plant in MT per day	350
* Variable Processing Cost (in \$ per MT)	\$235
* Capital Cost (per plant)	\$10,000,000
* Interest Rate on Capital	8%
* Depreciation of Harvesting Capacity (in years)	15
* Finished Product Value (in \$ per MT of round fish)	\$451

In this hypothetical example a vessel is valued at two million dollars and has a fifteen-year depreciation. Harvesting costs include an estimated variable cost of seventy dollars per metric ton for necessities like labor, fuel and groceries. The daily harvesting capacity of a vessel is about 150,000 pounds (rounded to seventy metric tons) and the ex vessel price for the fish is \$0.065 per raw pound or \$143.30 per metric ton. Similarly, a processing plant is valued at ten million dollars and processes about 775,000 pounds of raw fish per day (rounded to 350 metric tons). The variable cost of items such as labor, utilities, packaging and finished product ingredients, is estimated to be about ten cents per raw pound of fish (or rounded to \$235 per metric ton) processed at the plant.

One standard shore-based processing plant requires five vessels to maximize its productive capacity; thus, ten million dollars are invested in the plant and ten million invested in the five harvesting vessels, making the total capital investment in a harvesting and processing “unit” twenty million dollars.

This model shows how the fishery develops over time. Initially the fishery is unexploited. At the start of exploitation, initial entrants earn returns substantially above

market rates of return on investments, fueling additional investment. This investment continues until, on average, each participant is earning only a market rate of return on its investments. Figure 2 is an income statement for the first “unit” of fishing vessels and a processing plant to invest in the fishery in its first year of operation.

Figure 2. Combined Vessels and Plant Income Statement at Initial Stage of Industry Development in an Open Access Fishery

Harvesting Sector.

* Number of Vessels	5
* Total Investment in Vessels	\$10,000,000
* Total Revenue (63,000 MT @ 143.3 per MT)	\$9,030,000
* Costs	
- Variable Costs	\$4,410,000
- Interest	\$800,000
- Depreciation	\$666,667
- Total Cost	\$5,876,667
* Profit	\$3,153,333
* Return on Investment	32%

Processing Sector.

* Number of Plants	1
* Total Investment in plants	\$10,000,000
* Total Revenue (63,000 MT @ 451.6 per MT)	\$28,455,000
* Costs	
- Raw Fish Purchases	\$9,030,000
- Variable Costs	\$14,805,000
- Interest	\$800,000
- Depreciation	\$666,667
- Total Cost	\$25,301,666
* Profit	\$3,153,333
* Return on Investment	32%

A thirty-two percent return on investment *will* attract additional investments into the open access fishery. During the development phase of the fishery, a balance in the returns earned by the harvesting and processing sectors is enforced by market conditions. If

harvesting capacity exceeds processing capacity, it will lead to reduced ex-vessel prices as vessel owners compete with one another for a processing market. This reduces the returns on fishing vessels and increases the returns on processing, thus discouraging further investments in fishing vessels and encouraging investments in processing capacity. The market thereby encourages equal returns on investments earned by each sector.

Additional investment will continue to occur so long as any economic profits are being earned. As new investments are made, the seasons are shortened, costs rise, and returns fall on all investments. When the rate of return falls to the market rate of return on capital investments, investment stops. Open access equilibrium has been reached. This condition is analogous to the current situation facing both the harvesting and processing sectors of the Pacific whiting fishery. In the model, the harvesting and processing operations shown in Figure 2 would reach an open access equilibrium in a 100,000 metric ton per year fishery with twenty-five vessels delivering to five standard processing plants in a season now reduced to fifty-seven days.

Figure 3. Combined Harvesters and Processors Income Statement at Equaliburim Condition in Open Access Fishery

Harvesting Sector.

* Number of Vessels	25
* Total Investment in Vessels	\$50,000,000
* Total Revenue (100,000 MT @ 143.3 per MT)	\$14,333,333
* Costs	
- Variable Costs	\$7,000,000
- Interest	\$4,000,000
- Depreciation	\$3,333,333
- Total Cost	\$14,333,333
* Profit	\$0
* Return on Investment	0%

Processing Sector.

* Number of Plants	5
* Total Investment in Plants	\$50,000,000
* Total Revenue (100,000 MT @ 451.6 per MT)	\$45,166,666
* Costs	
- Raw Fish Purchases	\$14,333,333
- Variable Costs	\$23,500,000

- Interest	\$4,000,000
- Depreciation	\$3,333,333
- Total Cost	<u>\$45,166,666</u>
* Profit	\$0
* Return on Investment	0%

Under open access equilibrium, shown above in Figure 3, both harvesting and processing sectors are covering all costs, yet neither sector is earning economic rent from the resource. (Individual operators may be receiving quasi-rents because of their fishing skills, plant locations or marketing skills, etc.)

Fishery managers use the phrase “over-capitalized” to describe the capital invested in harvesting and processing fishery resources in an open access equilibrium condition. One commentator has even characterized those who have made these investments as “part of the problem” because of their “racing, over-capitalizing, excessively entering” the fisheries.^{xiii} But these characterizations are wrong. The capital invested in the open access fishery is, on average, making a market rate of return. *In fact, the capital invested in the fishery is completely appropriate for an open access managed fishery. The fishery is only “over-capitalized” in comparison to the amount of capital required if the fishery were rationalized.*

From the viewpoint of society as a whole, if this hypothetical open access fishery were rationalized, it would be utilized just as effectively by eight vessels, delivering to one-and-one-half standard processing plants, 180 days of the year. This would result in the elimination of capital and depreciation costs for an annual savings (over the open access equilibrium) of \$10,010,581. The 100,000 metric ton fishery would generate slightly over \$100 per metric ton of economic rent that did not exist in the open access fishery. This is the primary economic benefit of rationalization. Figure 4 shows the fishery after it has reached the rationalized equilibrium point.

Figure 4. Combined Harvesters and Processors Income Statement at Equilibrium Condition in a Rationalized Quota Based Fishery

Season Length.	180 days
Harvesting Sector.	
* Number of Vessels	8
* Total Investment in Vessels	\$15,873,015
* Total Revenue (100,000 MT @ 193.39 per MT)	\$19,338,624
* Costs	

-	Variable Costs	\$7,000,000
-	Interest	\$1,269,841
-	Depreciation	\$1,058,201
		<u>\$10,010,584</u>
-	Total Cost	\$19,338,624
* Profit		\$0
* Return on Investment		0%

Processing Sector.

* Number of Plants		1.5
* Total Investment in Plants		\$50,000,000
* Total Revenue (100,000 MT @ 451.6 per MT)		\$45,166,666
* Costs		
-	Raw Fish Purchases	\$19,338,624
-	Variable Costs	\$23,500,000
-	Interest	\$1,269,841
-	Depreciation	\$1,058,201
-	Total Cost	<u>\$45,166,666</u>
* Profit		\$0
* Return on Investment		0%

Quota Share Holder Sector.

* <i>Income (Pure Profit)</i>	<i>\$10,010,581</i>
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A comparison between open access equilibrium and private property equilibrium conditions shows the benefit that is expected from fishery rationalization. In an open access fishery, society receives \$45,166,000 worth of fishery products in exchange for \$45,166,000 worth of resources. In a rationalized fishery, society receives \$45,166,000 worth of fishery products in exchange for only \$35,156,000 worth of resources.

All of the economic rent resulting from rationalization is captured by quota share holders. At first glance, the fact that owners of fishing vessels and processing plants do not receive any rent from the fishery does not appear to be a problem. After all, vessel and plant owners were not receiving any economic rent under open access equilibrium conditions either. But in a fully capitalized open access fishery the owners of the fishing vessels and processing plants would suffer enormous losses during the transition between the open access and privatized fishery equilibrium conditions.

This is how those losses occur: A quota holder wishes to lease his quota for a year. A number of vessel-owning firms compete to lease the quota. In order for a vessel-owning firm to make a bid, it must know the price it will receive for the harvested fish. Each vessel-owning firm offers to deliver the harvested fish to a number of processing companies, who compete to buy the raw fish. The processing companies face a situation where any price above that which covers their variable cost is preferable to the only alternative, which is leaving their plant idle. The price that a processing company will offer is analogous to the price a one hundred dollar bill would receive in an auction. As long as the current offer allows for any return above variable cost, a processing company will make a higher offer. In the end, the price will be infinitesimally close to that which covers only the variable cost of processing the fish.^{xiv} The vessel-owning firm is therefore capable of securing processing services at the variable cost of those services.

The vessel-owning firms, armed with the commitment from processing companies, begin negotiations with the quota holder. In negotiations, the vessel-owning firms find themselves in exactly the same position that the processing companies faced when negotiating the raw fish price. As long as the most recent offer for quota allows for any revenue in excess of that needed to cover variable costs, all rational vessel-owning firms will offer a higher price. Inevitably the price paid for the quota by the vessel-owning firm will allow it only to cover its variable costs.

The excess processing capacity caused the processing companies to forgo any return on their investments when they bargained for the purchase of raw fish. The vessel-owning firms, because of the excess fishing capacity, will inevitably bargain away any return on their own capital investments, along with the price concessions they were able to extract from processing companies. The quota holder thus collects all the return on the capital of both the vessel and plant owners.

In the model, therefore, the quota holder would be able to generate \$147 in net revenue from each metric ton of fish, or approximately \$47 per metric ton more than the quota holder would be able to generate once the fishery reached the rationalized equilibrium state.

This \$47 per metric ton is, in effect, a direct transfer from the owners of fishing vessels and processing plants to the holder of quota. Immediately after the rationalization system is in place, those who are allocated quota receive, along with the fishing rights and the corresponding economic rent from the fishery, the right to expropriate the value of investments made by vessel and processing plant owners!

Figure 5. Combined Harvesters and Processors Income Statement During Transition Phase Between the Open Access Equilibrium Condition and the Rationalized Quota Based Fishery Equilibrium Condition

Season Length. 180 days

Harvesting Sector.

* Number of Vessels	25
* Total Investment in Vessels	\$50,000,000
* Total Revenue (100,000 MT @ 216.67 per MT)	\$21,666,666
* Costs	
- Variable Costs	\$7,000,000
- Interest	\$4,000,000
- Depreciation	\$3,33,333
	<u>\$14,666,666</u>
- Total Cost	\$28,999,999
* Profit	(\$7,333,333)
* Return on Investment	(14.6%)

Processing Sector.

* Number of Plants	5
* Total Investment in Plants	\$50,000,000
* Total Revenue (100,000 MT @ 451.6 per MT)	\$45,166,666
* Costs	
- Raw Fish Purchases	\$21,666,666
- Variable Costs	\$23,500,000
- Interest	\$4,000,000
- Depreciation	\$3,333,333
	<u>\$52,499,999</u>
- Total Cost	
* Profit	(\$7,333,333)
* Return on Investment	(14.6 %)

Quota Share Holder Sector.

* <i>Income (Profit)</i>	<i>\$14,666,666</i>
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During the transition period between open access and rationalized equilibrium conditions, nearly a third of the annual income received by quota share holders is *a direct expropriation of wealth* from those who have invested in harvesting and processing capacity! It is a transfer from owners of harvesting and processing equipment to those who receive allocations of quota.

The magnitude of the losses the harvesting and processing sectors should expect, as a percentage of total investment, will depend upon the relative amount of overcapitalization. In other words, the more excess capital drawn into the fishery during open access, the harder rationalization will be on the owners of that capital, regardless of when any particular investment was made.

In the model, the fishery reached open access equilibrium at a capitalization ratio of 3.2. This means that after the transition period, when the long-run rational capitalization level is reached, 68% (100%-32%) of the capital will disappear in the form of an uncompensated loss to the industry. This point should be emphasized. *If the transition period between open access and rationalized equilibrium conditions were somehow instantaneous, fishing vessel and processing plant owners would lose 68% of the value of their capital investments after the fishery was rationalized.* This 68% loss in wealth is the very lower limit on the losses that investors in the harvesting and processing sectors could suffer.

But the transition period is not instantaneous: When an open access fishery is rationalized, fishing vessel and plant owners will not start earning income on their capital investments until the “surplus” capacity is no longer physically available to participate in the fishery.

The length of the transition period is therefore a critical factor in determining the loss facing processing plant and fishing vessel owners. The longer the transition period lasts, the lower the present value of the return on the 32% (in the hypothetical model) of the capital that is appropriate to a rationalized fishery.

The length of the transition period is a function of only two things:

1. The amount of “overcapitalization” in the harvesting and processing sectors at the start of rationalization. This determines how much capacity must physically leave the fishery before the rationalized equilibrium condition is reached; and
2. The rate at which harvesting and processing equipment physically leaves the fishery after it is first rationalized. In other words, the “malleability and durability” of the harvesting and processing equipment.

Under open access conditions, as fishing and processing equipment wears out, it is replaced with major (as opposed to routine) maintenance expenditures; therefore, the capacity remains constant. When the quota system is imposed, however, the marginal value of fishing or processing capacity is zero, so expenditures to maintain this excess

capacity will not occur. Eventually harvesting and processing equipment will wear out and no longer be available. In the model, we assume that harvesting and processing capacity falls by 6.7% annually during the transition period. Given that there is just a little over three times the rational level of capacity at the onset of the program, the transition period lasts seventeen years in the model.

The transition period may be longer than seventeen years. Harvesting and processing equipment is quite durable and the transition period does not depend upon whether or not the equipment is actually used in the fishery. As long as there is excess equipment available which can potentially participate in the fishery, it prevents equipment in use from earning any return.

Figure 6. Economic Impact of Rationalization by Sector

Sector	Change in Discounted ^{SV} Value of Earnings During Transition Period	Original Value of Capital Investment	Value of Investments When Fishery is First Rationalized	Percentage of Value That Investment Losses When Fishery is Rationalized
Harvesting	-45,810,000	\$50,000,000	\$4,190,000	91.6%
Processing	-45,810,000	\$50,000,000	\$4,190,000	91.6%

Under the model, assuming a transition period of seventeen years, on the day rationalization is implemented, 91.6% of the value of fishing vessels and processing plants will be taken from its owners.

IV. How the Proposed Alternatives Address the Expropriation Suffered by Owners of Fishing Vessels and Processing Plants

Allocating quota to owners of fishing vessels that are members of cooperatives that are required to deliver their catch to a particular processor.

This proposal would allocate quota to vessel owners, who are then required to deliver their catches to the processing plants to whom they historically have sold their fish. The intention is that both the vessel and the processing plant retain their historical throughput of product and each remains whole after the implementation of rationalization.

There are two serious problems with this proposal: First, the degree in which a processor's throughput is protected is based on the strength of the "linkage" between the vessel and the plant. To the degree a vessel can leave and deliver its catch elsewhere, the processor could have the value of its plant expropriated by the vessel owner who receives allocations of quota.

Second, the cooperative proposal, at best, creates a bilateral monopoly. A bilateral monopoly arises when a monopolistic seller^{xvi} deals exclusively with a monopsonistic buyer. In this case, the vessel owner has a monopoly on the sale of a certain amount of fish and the processor has a monopsony on the purchase of a certain amount of fish.

Bilateral monopolies are rare because price under a bilateral monopoly is indeterminate. (This price instability is a source of problems with the “two-pie” system found in crab rationalization.) The price that is established has to be determined outside of the traditional method of supply and demand. As Nobel Prize-winning economist George Stigler noted: *in a bilateral monopoly, price will be determined by things such as “skill in negotiation; public opinion; coin flipping; a wise marriage. The difficulty in naming interesting examples of bilaterally monopoly arises because it is an unstable form of organization: only the trading between a monopsonist employer and an all-inclusive labor union is likely to survive as an example.”*^{xvii}

For the above reasons, the proposed alternative of allocating quota to fishing vessel owners who are members of “cooperatives” required to deliver to a particular processor does not necessarily protect owners of vessels or plants.

Allocating harvesting quota to fishing vessel owners and the owners of whiting processing plants.

Since the value of fishing vessels and processing plants is transferred from their owners to the holders of quota when a fishery is rationalized, a simple way to assure such owners are compensated is to allocate quota shares to both owners of fishing vessels and owners of processing plants. Indeed, this is the only rationale under which either fishing vessel or processing plant owners can justify receiving allocations of the public’s fishery resources. This proposal would still transfer the value of fishing vessels and processing plants from the vessel and plant owners to quota share holders, but it would ensure that the quota share holders and vessel and plant owners were one and the same, thereby avoiding the expropriation of their wealth.^{xviii}

At the March 2007 meeting of the Pacific Council, Professor James Wilen expressed the opinion that it may be inappropriate to allocate quota to investors in the whiting industry. He believed rationalization would cause only a small loss in the value of the capital invested in the whiting fishery. Professor Wilen noted that the decrease in value of capital that is suddenly surplus to the fishery’s needs depends upon that capital’s “next best alternative use,” which might be nearly equal in value to its current use.^{xix}

An examination of the value of surplus fishing vessels and processing plants, however, shows how *little* they will be worth in their “next best alternative use.”

There are few financially viable places for a fishing vessel to move. The most obvious region for a fishing vessel to enter is Alaska. The Alaska fisheries, however, are all

already in an open access equilibrium condition. The groundfish fisheries in Alaska are also under a license limitation program; any new entrant is required to purchase a license. The Bering Sea pollock fishery is closed to any new fishing vessels entering the fishery as a result of the American Fisheries Act. The largest demand for vessels in Alaska is for salmon tender vessels, but a vessel operating exclusively as a tender vessel has limited value.

It is clear that a whiting fishing vessel would greatly decrease in value if the fishery were rationalized, but there is no accurate data on what its next best alternative use would be. We have been told that a surplus whiting fishing vessel could be used for salmon tendering or, if it were especially well maintained, as a replacement for an already existing fishing vessel working in Alaska. Vessel owners we have spoken with believe that if the whiting fishery were rationalized, a whiting trawler without quota would be worth something in the “low hundreds of thousand dollar level.”

In contrast to fishing vessels that can simply be moved to different regions, shore-based processing plants are stationary. But as Professor Wilen noted, much of the used equipment in a shore-based plant has some value, even if it is not used in the whiting fishery. Equipment removal and disposal costs, however, must also be considered to determine the net value of a shore-based plant’s used equipment.

Figure 7 is a detailed estimate of the “next best alternative use” for a shore-based whiting plant, using equipment actually found in a whiting plant.

**Figure 7. “Next Best Alternative Use”
Value of a Shore-Based Whiting Plant**

Production of Primary Product:

Offloading/Fishing Holding Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Fish Pumps	\$60,000	\$2,000	\$30,000			\$28,000
Crane	\$20,000	\$3,000	\$5,000			\$2,000
3500 Ft3 RSW Tanks	\$200,000	\$20,000		\$10,000		-\$10,000
RSW Pumps/Chillers	\$250,000	\$10,000	\$20,000			\$10,000
Conveying Equip.	\$120,000	\$15,000		\$10,000		-\$5,000
Foundations	\$50,000	\$5,000		\$2,000		-\$3,000
Catwalks	\$20,000	\$5,000		\$1,000	\$1,000	-\$5,000
Electrical	\$50,000	\$10,000			\$2,000	-\$12,000
Controls	\$20,000	\$2,000			\$200	-\$2,200
Subtotal	\$790,000	\$72,000	\$55,000	\$23,000	\$3,200	\$2,800

Filleting Equipment Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
4 x Baader 182	\$1,000,000	\$20,000	\$160,000			\$140,000
4 x Baader 51	\$200,000	\$4,000	\$60,000			\$56,000
4 x Candeling Table	\$100,000	\$4,000		\$5,000		\$1,000
Sorting Equipment	\$75,000	\$10,000		\$5,000		-\$5,000
Raw Fish Handling Eq	\$100,000	\$10,000		\$15,000		\$5,000
Fillet Handling Eq.	\$20,000	\$2,000		\$15,000		\$13,000
Offal Handling/Storage	\$150,000	\$30,000		\$20,000		-\$10,000
Fillet Packing Tables	\$50,000	\$5,000		\$10,000		\$5,000
Fillet Frames	\$75,000	\$500	\$7,500			\$7,000
Electrical	\$100,000	\$10,000			\$5,000	-\$15,000
Controls	\$30,000	\$500			\$500	-\$1,000
Subtotal	\$1,900,000	\$96,000	\$227,500	\$70,000	\$5,500	\$196,000

Surimi Line Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
3 x Baader 695	\$270,000	\$3,000	\$90,000			\$87,000
2 x Ratio Tanks	\$30,000	\$2,000		\$1,000		-\$1,000
3 x Duble Stack Screen	\$120,000	\$3,000		\$1,500		-\$1,500
4 x Wash Tanks	\$60,000	\$4,000		\$2,000		-\$2,000
2 x Fukoku 450 Ref.	\$180,000	\$8,000		\$2,600		-\$5,400
6 x Fukoku 5m scr. pr.	\$540,000	\$30,000		\$7,800		-\$22,200
3 x Flotweig Decanters	\$1,200,000	\$30,000	\$60,000			\$30,000
Presscake Handling Eq.	\$120,000	\$2,000		\$2,000		\$0
2 x Ishita Autoblender	\$600,000	\$2,000	\$20,000			\$18,000
2 x Extruders	\$100,000	\$1,000	\$20,000			\$19,000
15 x PD Pumps	\$300,000	\$7,500	\$7,500			\$0
Process Piping	\$150,000	\$2,000		\$6,500		\$4,500
Electrical	\$130,000	\$10,000			\$2,000	-\$12,000
Controls	\$160,000	\$5,000			\$1,000	-\$6,000
Catwalks/Foundations	\$50,000	\$20,000		\$10,000	\$4,000	-\$14,000
Subtotal	\$4,010,000	\$129,500	\$197,500	\$33,400	\$7,000	\$94,400

Refrigeration Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Blast Freezer	\$120,000	\$15,000			\$2,000	-\$17,000
10 x Plate Freezers	\$600,000	\$40,000			\$5,000	-\$45,000
Freezer Conveyors	\$100,000	\$50,000	\$50,000			\$0
Refrig. Compressors	\$40,000	\$5,000			\$5,000	-\$10,000
Condensers	\$60,000	\$15,000	\$60,000		\$2,000	\$43,000
Recievers	\$50,000	\$10,000			\$2,000	-\$12,000
Subtotal	\$970,000	\$135,000	\$110,000	\$0	\$16,000	-\$41,000

Structure and Utilities Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Hydraulics	\$75,000	\$15,000			\$8,000	-\$23,000
Water	\$150,000	\$20,000	\$30,000			\$10,000
Electrical	\$180,000	\$15,000		\$5,000		-\$10,000
Plumbing	\$220,000	\$40,000				-\$40,000
Waste Water Treatment Structure	\$350,000	\$15,000		\$10,000		-\$5,000
Vehicles/Forklifts	\$600,000	\$275,000			\$150,000	-\$425,000
Office Equipment/Tools	\$200,000		\$50,000			\$50,000
Laboratory	\$100,000		\$10,000			\$10,000
Spare Parts	\$60,000		\$6,000			\$6,000
	\$250,000		\$25,000			\$25,000
Subtotal	\$2,185,000	\$380,000	\$121,000	\$15,000	\$158,000	-\$402,000

Subtotal for all of the Used Equipment From Primary Production = -\$149,800.

Production of Fish Meal:

Offal Handling and Storage Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Truck Dump	\$20,000	\$10,000		\$2,000		-\$8,000
2 x Offal Tanks	\$80,000	\$10,000		\$2,000		-\$8,000
Lamella 350/90 Pump	\$70,000	\$5,000	\$10,000			\$5,000
4 x Screw Conveyors	\$60,000	\$10,000	\$5,000			-\$5,000
Subtotal	\$230,000	\$35,000	\$15,000	\$4,000	\$0	-\$16,000

Cooking Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Feed Conveyor	\$35,000	\$5,000	\$10,000			\$5,000
Feed Hopper	\$20,000	\$5,000		\$2,000		-\$3,000
Cooker	\$250,000	\$30,000	\$25,000			-\$5,000
Straining Conveyor	\$30,000	\$2,000		\$1,000		-\$1,000
Strainer Tank	\$15,000	\$1,000		\$1,000		\$0
Subtotal	\$350,000	\$43,000	\$35,000	\$4,000		-\$4,000

Pressing Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Atlas NP150 Press	\$325,000	\$50,000	\$25,000			-\$25,000
3 x Press Water Tank	\$60,000	\$2,000	\$2,000			\$0
Hasher	\$20,000	\$1,000	\$3,000			\$2,000
Feed Conveyor to Dryer	\$25,000	\$2,000	\$5,000			\$3,000
Subtotal	\$430,000	\$55,000	\$35,000	\$0	\$0	-\$20,000

Drying/Bagging Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Dryer	\$550,000	\$125,000	\$25,000			-\$100,000
9 x Screw Conveyors	\$135,000	\$18,000	\$9,000			-\$9,000
Meal Cooler	\$60,000	\$10,000		\$2,000		-\$8,000
Vibra Screen	\$12,000	\$2,000	\$3,000			\$1,000
Hammer Mill	\$50,000	\$5,000	\$10,000			\$5,000
2 x Bag Filters	\$25,000	\$5,000	\$5,000			\$0
2 x Bagging Machine	\$20,000	\$5,000	\$2,000			-\$3,000
Subtotal	\$852,000	\$170,000	\$54,000	\$2,000	\$0	-\$114,000

Liquid Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
3 x Alfa Laval Decanter	\$60,000	\$35,000	\$45,000			\$10,000
2 x Alfa Laval Separato	\$560,000	\$25,000	\$80,000			\$55,000
Alfa Laval 207 Polisher	\$90,000	\$5,000	\$10,000			\$5,000
6 x Process Pumps	\$140,000	\$12,000	\$12,000			\$0
5 x Process tanks	\$150,000	\$10,000		\$4,000		-\$6,000
4 x Falling Film Evap.	\$450,000	\$40,000	\$50,000			\$10,000
Subtotal	\$1,450,000	\$127,000	\$80,000	\$4,000	\$0	\$74,000

Air Quality Control Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Air Scrubbers	\$200,000	\$30,000		\$10,000		-\$20,000
Ducting/Piping	\$70,000	\$20,000		\$5,000		-\$15,000
Salt water Supply/ Discharge	\$30,000	\$20,000		\$2,000		-\$18,000
Subtotal	\$300,000	\$70,000	\$0	\$15,000	\$0	-\$53,000

Building, Internal Structure and Utilities Component —

Equipment	Costs New	Removal Cost	Sale Value of Used Equip.	Scrape Value of Used Equip.	Disposal Costs	Net Value of Used Item
Equipment Footings	\$150,000	\$30,000			\$3,000	-\$33,000
Equipment Foundations	\$450,000	\$60,000		\$15,000		-\$45,000
HP Boiler	\$400,000	\$20,000	\$50,000			\$30,000
Steam Piping	\$40,000	\$5,000		\$2,000		-\$3,000
Water Piping	\$20,000	\$3,000			\$1,000	-\$4,000
Electrical	\$550,000	\$60,000			\$5,000	-\$65,000
Controls	\$450,000	\$5,000			\$3,000	-\$8,000
Ventilation	\$250,000	\$20,000		\$5,000		-\$15,000
Structure	\$600,000	\$400,000			\$200,000	-\$600,000
Subtotal	\$2,910,000	\$603,000	\$50,000	\$22,000	\$212,000	-\$743,000

Subtotal for all of the Used Equipment From Meal Plant = -\$876,000

Total value of used equipment from a shore-based whiting plant = -\$1,025,800.

It would cost slightly over a million dollars *more* to dismantle a shore-based whiting plant and remove its equipment than the used equipment is worth. This should not be a

surprise. Consider an average residential home: The home has many used items which can be sold, such as a furnace, refrigerator, dishwasher and the like. But the costs of dismantling the home and disposing of all the ruined sheetrock, shingles, siding and insulation would far exceed any current value the used items may still retain.

In summary, the value of whiting fishing vessels would be very low in their “next best alternative use.” There is a very limited market for these fishing vessels. Unlike fishing vessels, a shore-based whiting processing plant cannot move to a new location. A shore-based plant’s “next best alternative use” would be to sell its used equipment. But used equipment has a limited market, and the costs required to de-construct a shore-based plant and remove its equipment would exceed the value of the equipment. Therefore, the decrease in value of capital invested in fishing vessels and processing plants that would result from rationalization of the whiting fishery should be compensated through the allocation of quota to owners of fishing vessels and plants as that capital’s “next best alternative use” is not close to being equal in value to its current use.

IV. Conclusion

Rationalization of Pacific whiting will result in more efficient utilization of this resource, regardless of who receives quota. Moreover, the goals and objectives set by the Pacific Council will be achieved no matter how the quota is allocated. The issue then becomes this: Why would any private entity be allocated quota of Pacific whiting when the government owns the resource and the general public can receive the full benefits of rationalization through a simple auction? The rationale for allocating quota to private entities is that the owners of whiting fishing vessels and whiting processing plants will lose most of the value of their investments to quota holders when the fishery is rationalized. Owners of fishing vessels and processing plants therefore must receive allocations of whiting quota so that the tens of millions of dollars they have invested in developing the fishery will not be expropriated.

* These comments are taken from a paper the authors wrote in 1991 regarding the pollock fishery in Alaska.

ⁱ “Rationalization” is a euphemistic word for “privatization.” In this paper we define “rationalization” as “privatizing the privilege to utilize fishery resources.”

ⁱⁱ Pub. L. 109-479 (2007).

ⁱⁱⁱ Pub. L. 109-479, sec. 302(f) [uncodified].

^{iv} Professor Daniel W. Bromley asserts that the “claim that IFQ programs offer ‘market-based’ allocations of harvest quota is patently false” because fishery resources are already

owned by the federal government. Mr. Bromley notes that when the Magnuson-Stevens Act became law in 1976, it gave the United States ownership of fishery resources within the 200-mile exclusive economic zone. Bromley then states, “[s]ince the transition period [from open access to privatized equilibrium conditions] already happened almost 30 years ago, it is curious that the fisheries literature has failed to acknowledge the flawed presumption that no one owns the fish until they have been captured.” Bromley, *Purging the frontier from our mind: Crafting a new fisheries policy*, 15 *Reviews in Fish Biology and Fisheries*, p. 218 (2005). (Hereinafter, “Bromley”) The mere fact that the government has ownership over an item does not mean that the utilization of that particular item will be market-based, however. The government in the Soviet Union, for example, owned the means of production in communist Russia. But the utilization of that means of production was based on politics, not on the free market. Similarly, the United States government owns fishery resources with the 200-mile exclusive economic zone but, in an open access fishery, utilization of those resources is based on a race to harvest and process the fish, and not a market-based approach.

^v 40 C.F.R. §1502.16.

^{vi} We believe that limited entry permit holders to be a surrogate for vessel owners. To the degree this is not the case, there are two issues that should be considered. Permits issued by the government are technically a privilege and subject to revocation without compensation. To the degree permit holders are not also the owners of the fishing vessel, there is a serious risk that the fishing vessel owner will have the value if its investment expropriated.

^{vii} This paper focuses exclusively upon the shore-based Pacific whiting fishery.

^{viii} The only rationalization scheme to award allocations of harvesting privileges to “fishermen” was the crab rationalization program in the North Pacific, which allocated three percent of the rationalized crab harvest to captains who worked on fishing vessels.

^{ix} The United States claims sovereign rights over all fish within the United States exclusive economic zone. 16 U.S.C. §1811(a).

^x The recently enacted amendments to the Magnuson-Stevens Act allows for auctions. The legislation states: “In establishing a limited access privilege program, a Council shall consider, and may provide, if appropriate, an auction system or other program to collect royalties for the initial, or any subsequent distribution of allocations in a limited access privilege program...” 16 U.S.C. §1853a.

^{xi} Fish are highly perishable before being processed into a primary product. Investors in fishing vessels and primary processing capacity have made those investments based on the requirement that fish be handled quickly, i.e. these investors have invested in the “race to fish” caused by the open access fishery management regime. Investors in

secondary processing of seafood, on the other hand, have not made their investments based upon the "race to fish" caused by open access. Secondary processors have not overcapitalized as a result of the existing management regime and will not be adversely impacted, therefore, by the privatization of fishery resources. Being that secondary processors are consumers of processed seafood, their investments may benefit if the utilization of fishery resources is increased through privatization.

^{xii} Depreciation, as it is used in the income statements here must be strictly defined. It is assumed that the physical equipment deteriorates by a certain amount each year. (6.7%) In order for the capacity of the asset to remain constant, this must be offset by major maintenance projects. The absolute amount of this is estimated from our own fishing and processing operations. At open access equilibrium this is a real cost of staying in business. Immediately after the imposition of the quota program this type of expenditure becomes irrational, not made, and no longer figures into the supply function of fishing (or processing) services. This results in the slow decline in capacity from the equilibrium amount under open access, toward the equilibrium amount under private property equilibrium. Were this not to occur — in the case where physical capital perfectly durable — the transition period continues forever, and the loss to owners of physical capital is 100%. The depreciation listed is non-linear in that one-fifteenth of the existing capital as originally valued disappears each year.

^{xiii} Bromley, p. 221.

^{xiv} See, Herbert Hovenkamp, *Enterprise and American Law 1836-1937*, (1991), p. 143. Hovenkamp describes the situation where a second railroad enters a previously profitable market. "They will begin cutting prices in order to steal business from one another. Any price above operating (variable) costs is 'profitable' in the sense that it covers the direct costs of shipping and contributes something to the amortization of fixed costs. ... even though it is not nearly enough to cover all its costs."

Citing Francis Edgeworth from 1881, a good description of the situation was also made by Nobel Prize-winning economist George Stigler, who gave the following example: "Let each servant work for only one master, and each master employ only one servant. Let each servant demand at least \$50 per unit of time, and each master offer at most \$100. If the number of servants and masters is large and equal, the wage rate will be indeterminate between \$50 and \$100. More important; one servant can drive the wage rate to \$100 by withdrawing from the market (and similarly a master could drive the rate to \$50), so even one of a thousand servants or masters can affect the rate." George Stigler, *The Organization of Industry*, (1968), p. 7.

^{xv} In the model a discount rate of 8% was used. This discount rate is higher than that normally used in cost benefit calculations for such things as public works projects. The reason why the higher discount rate was used was to reflect the higher uncertainty in the level and duration of the benefit stream that exists in fisheries, when compared to, for

example, a bridge. The 8% was chosen as a round number within the range of the discount rate that can be derived from lease transactions and sales transactions in the Dock Street Brokers quota sales web site.

^{xvi} But for the fact they are established by governmental action, the creation of an Individual Fishing Quota system that allocates an exclusive right to harvest a particular percentage of a fishery to specific fishermen is a clear violation of the antitrust laws. Even under the antitrust exemption granted by the Fishermen's Collective Marketing Act of 1936, a group of fishermen would be in violation of antitrust laws if they attempted to exclude others from participating in a particular fishery.

^{xvii} George Stigler, *The Theory of Price*, 4th Edition (1987), p. 215.

^{xviii} One assertion that we have recently heard made against considering the impact that rationalization has on processing plants is that the assets of the pacific whiting industry are largely of an age where they can be considered largely or fully depreciated, and therefore, can be confiscated or destroyed without negative consequences to their owners. This argument is fallacious, but is easy to see how such a conclusion could be reached given that the term "depreciation" has a variety of definitions depending on whether the context is tax, finance or economics. First we will demonstrate that the is assertion is in fact fallacious with an example to show that the book value of the underlying physical assets is essentially irrelevant in calculating the loss resulting from the destruction of the asset or an interruption of the income stream

Imagine a taxicab owner with a five-year old cab. The cab earns \$100 per day after all operating expenses such as driver wage, oil and gas and routine wear and tear. The cab is uninsured (for theft). The cab is stolen. The owner replaces the cab with a car of similar age and condition, for a price including modifications and inspections of \$1000. It takes 30 days for modifications and inspections during which time the cab business is interrupted.

How worse off is the cab owner? Does the fact that the cab was on his books for \$0 mean that he wasn't harmed? Of course not. The "book" value of the cab is entirely irrelevant, whether the cab is on the books for zero dollars or a billion dollars, the fixed capital component of his loss is \$1000, the amount he had to pay for a replacement. His business was interrupted for thirty days, during which he lost \$3000. The total loss would therefore have been \$4000.

^{xix} March 2007 Powerpoint presentation by Professor James Wilen, Department of Agric. & Resource Economics, University of California, Davis, before the Pacific Fishery Management Council. Professor Wilen focused his comments only on the processing sector, but the issue is relevant for owners of both fishing vessels and processing plants.

It should also be noted that Professor Wilen acknowledged that the whiting fishery is similar to the pollock fishery in Alaska prior to the American Fisheries Act, in that it involves a “race to fish.” But Professor Wilen also stated it was different in large part because shore-based processing of whiting is *more* highly concentrated than the Alaska pollock fishery prior to rationalization. The inference was that processors in the whiting fishery do not need to be included in rationalization (as they were in the pollock fishery) because they have market power over harvesters, even if the fishery were rationalized.

This is a remarkable claim. Dr. Wilen had previously testified before the North Pacific Fishery Management Council that the Alaska pollock fishery had ostensibly only *two* buyers at the time of passage of the American Fisheries Act.

To quote Dr. Wilen’s testimony before the North Pacific Council in April of 1999:

... the (American Fisheries) Act clearly has the finger prints of special interest lobbying all over it, with various provisions inserted that serve no public interest but that give the processing sector an unfair advantage over an already disadvantaged harvesting sector. One of the most bald-faced provisions designed to eliminate competition in the ex-vessel market is the provision that requires members to sell to the processor that handled the bulk of their fish the previous year. This essentially transforms an oligopsony (*with two players*) into several monopsonies which give sole buyer status to each plant in turn. Hence instead of negotiating a price with (*ostensibly*) *two firms* and then negotiating side deals about where to deliver, vessels owners must negotiate a price with just one buyer, with whom they are locked into delivering.”

No one except Dr. Wilen has seriously argued there are fewer than two buyers in the shore-based whiting fishery.