

**Attitudes  
Toward Current  
and Alternative  
Management  
Practices in Alaska's  
Limited Entry  
Commercial  
Herring Roe  
Fisheries**

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## INTRODUCTION

Pacific herring (*Clupea pallasii*) has been commercially harvested in Alaska since the early 1900s. Early harvesting was primarily focused on markets for food but shifted to production of fish oil and fishmeal in the 1920s.

In the 1970s, the sac roe fishery for export to Japan became the dominant herring fishery. Although the market price has been deteriorating in recent years, Japan remains the predominant buyer for Alaska's herring resources. The total ex-vessel value of the roe herring roe has dropped from about \$50 million in 1996 to under \$10 million in 2000.

Herring are still harvested for food and bait, as well as for roe. Alaska herring are fished commercially with purse seine, gillnet, and beach seine gear. Spawn-on-kelp fisheries also exist, in which herring are caught, transferred to pens, and kept in these enclosures until the fish spawn on kelp blades hung in the pens. Most commercial herring fisheries in Alaska are limited-entry fisheries, with a total of 1,254 permit holders currently licensed.

Alaska's purse seine and gillnet limited entry fisheries are managed in a "derby" fashion, with permit-holders fishing until a pre-established quota is reached. There have been discussions among permit-holders in the Southeast Alaska roe herring seine fishery about changing their fishery to a cooperative fishery, where individual allocations of the catch are pre-established. However, the potential benefits and drawbacks of such a change are complex and difficult to assess. The purpose of this paper is to summarize the fishers' attitudes toward current and alternative management practices in Alaska's limited entry roe herring fisheries. It is not intended as an endorsement of any one particular management strategy over another.

By surveying participants in Alaska's commercial herring roe fishery, this study sought to explore five main questions:

- How important is it for herring management systems to address certain issues pertaining to the fisheries?
- Have these issues been getting worse, not changing, or getting better in recent years?
- To what extent do permit-holders agree or disagree with alternative herring roe fishery management systems?

- Does ownership of Pacific halibut (*Hippoglossus stenolepis*) or sablefish (*Anoplopoma fimbria*) individual fishing quotas (IFQs) affect attitudes toward implementing an IFQ management system for herring fisheries?
- Who would be hurt by implementing IFQ or equal fishing quota sharing systems in herring roe fisheries?

## METHODS

In January 2001, a census was taken of 13 major limited entry roe herring fisheries in Alaska: Cape Romanzof gillnet, Cook inlet purse seine, Goodnews Bay gillnet, Kodiak gillnet and purse seine, Nelson Island gillnet, Norton Sound gillnet and beach seine, Nunivak Island gillnet, Prince William Sound gillnet and purse seine, and Southeast gillnet and purse seine. The survey consisted of 39 questions seeking information about levels of experience, attitudes towards management policies, and demographics.

A total of 377 surveys were returned. This figure represents 419 different permits, because some individuals hold more than one permit. For this reason data from the survey are presented in two ways: data given for each fishery represent 419 data entries, or one opinion from each permit-holder; and data summarized for all fisheries combined represent 377 data entries, or one opinion from each survey participant.

Due to the low number of responses from the Norton Sound beach seine fishery, data are not presented on a separate fishery basis. Rather, they are included in summaries for all fisheries combined.

## RESULTS

A total of 1101 surveys were sent out, and 377 surveys were returned for an overall response rate of 34.2 percent. Individual fisheries with a response rate equal to or greater than 50 percent included only purse seine fisheries (Southeast = 64.6%, Prince William Sound = 52.2%, and Cook Inlet = 50.0%). Most respondents claimed Alaska as their primary state of residence. With minor exceptions, there were few respondents under 36 years of age. A majority in all but three fisheries belonged to a commercial fishing association.

**Question: How important is it for herring management systems to address certain issues pertaining to the fisheries?**

Permit-holders were asked how important they felt it was for herring management practices to address the following issues: safety, conservation of the resource, correspondence between actual catch figures and harvest quotas, operating expenses, fish quality, fish prices, personal financial gain, and an open-ended category for other issues. Issues ranked most frequently as extremely important were conservation of the resource, fish quality, and fish prices (Table 1).

**Question: Have these issues been getting worse, not changing, or getting better in recent years?**

The three issues that received the largest percentage of marks in the “getting better” category included safety (31.0%), fish quality (29.7%), and conservation of the resource (25.2%). The three issues that received the largest percentage of marks in the “getting worse” category included fish prices (80.4%), personal financial gain (71.6%), and operating expenses (59.4%) (Table 2).

**Table 1. Answers given to Question 13 (in percent): “How important do you feel it is for roe herring fishery management policies to address the following issues?” Data are summarized for all fisheries combined.**

	1 Not at all important	2	3 Somewhat important	4	5 Extremely important	6 Not sure/ No answer
Safety	7.7	8.8	24.1	18.6	36.3	4.5
Conservation of the resource	1.3	0.8	4.5	15.9	70.8	6.6
Fair allocation of the resource	3.4	2.9	11.9	24.9	50.1	6.6
Actual catches matching harvest quotas	2.1	4.5	24.7	27.1	36.3	5.3
Operating expenses	9.3	9.5	24.1	19.6	29.2	8.2
Fish quality	1.1	1.3	3.7	18.6	69.8	5.6
Fish prices	8.2	3.4	10.1	14.6	58.6	5.0
Personal financial gain	11.7	6.9	15.6	17.5	38.5	9.8
Other	1.3	0.3	1.1	2.1	5.0	90.2

**Table 2. Responses given to Question 14 (in percent): “Have these issues been getting worse, not changing, or getting better in recent years?” Data are summarized for all fisheries combined.**

	1 Getting worse	2 Not changing	3 Getting better	4 Not sure/No answer
Safety	6.9	50.4	31.0	11.7
Conservation of the resource	13.0	45.4	25.2	16.4
Fair allocation of the resource	23.3	46.4	12.5	17.8
Actual catches matching harvest quotas	20.7	46.9	16.7	15.6
Operating expenses	59.4	26.0	2.4	12.2
Fish quality	15.1	43.0	29.7	7.7
Fish prices	80.4	9.3	2.7	7.7
Personal financial gain	71.6	15.6	1.3	11.4
Other	7.4	1.1	0.3	91.2

**Question: To what extent do permit-holders agree or disagree with alternative herring roe fishery management systems?**

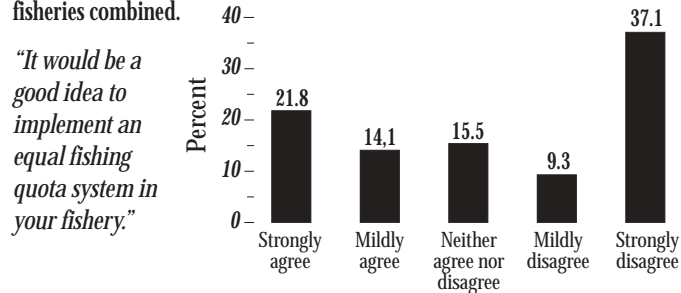
Two alternative management systems were suggested in the survey: an equal quota sharing system and an individual fishing quota system. Both systems award participants fixed amounts of the available herring quota but differ in the way that the quotas are awarded, as well as the actual quota amounts. An equal quota sharing system would award an equal amount of the herring quota to each participant regardless of catch history. In this regard, this management system resembles a fleetwide co-op. In an individual fishing quota system, variable amounts of the herring quota are awarded to each participant, based on catch history during a certain time frame. This would resemble

the way that halibut and sablefish fisheries are currently managed in Alaska.

For all 13 fisheries combined, feelings toward the equal quota sharing system were sharply split. “Strongly disagree” at 37.1 percent and “strongly agree” at 21.8 percent were the two most frequent responses (Figure 1). Among individual herring fisheries, only the Southeast purse seine fishery had a majority supporting the equal quota share idea, either mildly or strongly. A majority were either mildly or strongly in disagreement with the equal quota share system in the Cook Inlet and Kodiak purse seine fisheries, and in the Prince William Sound, Kodiak and Norton Sound gillnet fisheries. (Table 3).

Asked if they felt it would be a good idea to implement an IFQ-style management system in their fishery, nearly half of all respondents (46.9%) indicated that they “strongly disagree” with this idea (Figure 2). Seven of the 13 individual fisheries had a majority of responses marked as some form of disagreement, with no majorities in some form of agreement (Table 4).

Figure 1. Respondents’ answers to the question of whether it would be a good idea to implement an equal quota sharing system in their fishery. Data are for all fisheries combined.



**Table 3. Respondent’s answers (in percent) when asked if they felt it would be a good idea to implement an equal quota sharing system in their fishery.**

Percent	Strongly agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Strongly disagree
<b>PURSE SEINE</b>					
Southeast	45.2	25.8	0.0	0.0	29.0
Prince William Sound	21.3	23.4	4.3	8.5	40.4
Cook Inlet	27.3	4.5	9.1	9.1	50.0
Kodiak	24.1	6.9	6.9	3.4	55.2
<b>GILLNET (GULF OF ALASKA)</b>					
Southeast	27.5	17.6	5.9	5.9	41.2
Prince William Sound	20.0	10.0	10.0	30.0	30.0
Kodiak	8.3	19.4	5.6	11.1	52.8
<b>GILLNET (WESTWARD)</b>					
Nelson Island	14.3	14.3	28.6	8.6	34.3
Nunivak Island	20.0	20.0	20.0	0.0	33.3
Goodnews Bay	40.5	5.4	37.8	2.7	13.5
Cape Romanzof	18.2	22.7	31.8	4.5	13.6
Norton Sound	9.9	8.6	18.5	18.5	37.1
<b>ALL</b>	<b>21.8</b>	<b>14.1</b>	<b>15.4</b>	<b>9.3</b>	<b>37.1</b>

**Question: Does ownership of Pacific halibut or sablefish IFQs affect attitudes toward implementing an IFQ management system for herring fisheries?**

To determine if halibut or sablefish IFQ ownership affects whether people support an IFQ system for herring fisheries, responses were summarized separately for owners and non-owners of IFQ shares. Non-owners of IFQ shares outnumbered owners by more than two to one, as shown in Figure 3. The mean responses from owners of halibut or sablefish IFQ shares were not significantly different from those of non-owners.

Figure 3. Responses to the question of whether it would be a good idea to implement an individual fishing quota management system in herring fisheries, separated by IFQ ownership. Data are for all fisheries combined.

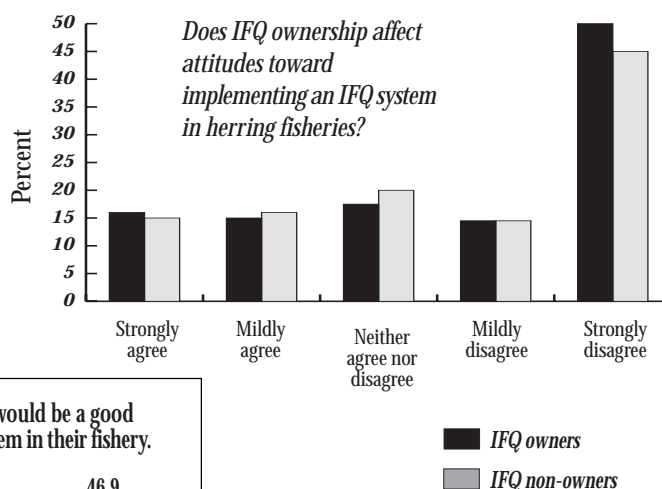
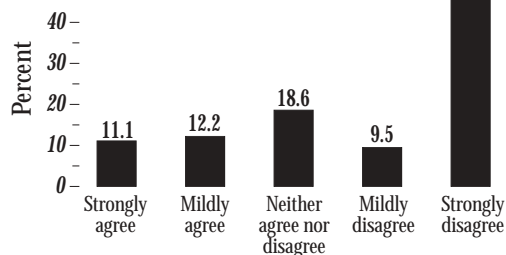


Figure 2. Respondents' answers to the question of whether it would be a good idea to implement an individual fishing quota management system in their fishery. Data are for all fisheries combined.

*"It would be a good idea to implement an individual fishing quota system in your fishery."*



**Table 4. Respondents' answers (in percent) when asked if they felt it would be a good idea to implement an individual fishing quota management system in their fishery.**

Percent	Strongly agree	Mildly agree	Neither agree nor disagree	Mildly disagree	Strongly disagree
<b>PURSE SEINE</b>					
Southeast	29.0	12.9	12.9	12.9	32.3
Prince William Sound	14.9	10.6	25.5	6.4	40.4
Cook Inlet	9.1	18.2	13.6	18.2	45.5
Kodiak	13.8	17.2	10.3	6.9	51.7
<b>GILLNET (GULF OF ALASKA)</b>					
Southeast	3.9	23.5	11.8	11.8	47.1
Prince William Sound	0.0	0.0	40.0	20.0	40.0
Kodiak	2.8	5.6	11.1	5.6	69.4
<b>GILLNET (WESTWARD)</b>					
Nelson Island	8.6	8.6	31.4	8.6	42.9
Nunivak Island	6.7	13.3	26.7	0.0	46.7
Goodnews Bay	13.5	13.5	29.7	5.4	37.8
Cape Romanzof	27.3	22.7	27.3	0.0	18.2
Norton Sound	7.4	6.2	14.8	13.6	58.0
<b>ALL</b>	<b>11.1</b>	<b>12.2</b>	<b>18.6</b>	<b>9.5</b>	<b>46.9</b>

***Question: Who would be hurt by implementing IFQ or equal fishing quota sharing systems in herring roe fisheries?***

Survey participants were asked if anybody would be hurt by implementing an IFQ or equal quota sharing system in their fishery. With the exception of the Southeast purse seine, Nunivak Island gillnet, and Goodnews Bay gillnet fisheries respondents, a majority from all fisheries reported that implementing an equal quota sharing system would hurt somebody in their fishery.

Respondents were asked to indicate who would be hurt the most among crew members, processors, people with little or no catch during qualifying years, new entrants to the fishery (since the qualifying period), Alaska fishermen or fisherwomen, coastal communities, or others. Respondents could mark more than one category for this question. Most indicated that implementing an IFQ management system in their fishery would hurt “people with little or no catch during qualifying years” the most (Table 5). Twenty-eight percent to 32 percent indicated that implementing an IFQ or equal quota sharing system would hurt “crew members” and “Alaska fishermen or fisherwomen” the most (Table 5).

**Table 5. People who would be hurt the most by implementing an IFQ or equal quota share management system. Data (in percent) is for all fisheries combined.**

	Equal quota share	IFQ
Crew members	28.6	31.8
Processors	7.7	9.0
People with little or no catch during qualifying years	n/a *	58.9
New entrants to the fishery since the qualifying period	n/a *	30.2
Prospective new entrants with limited resources	14.9	21.8
Alaska fishermen or fisherwomen	28.6	26.0
Coastal communities	15.6	22.0
Other	20.7	11.9

\* Because catch history is not used in calculating equal quota shares, the categories “people with little or no catch during qualifying years” and “new entrants to the fishery since the qualifying period” are not relevant to the equal quota sharing option.

## CONCLUSIONS

The survey shows that the single most crucial management issue to permit holders is conservation of the resource. Of all respondents, 70.8% indicated that they felt it was “extremely important” for management policies to address this issue. The next two most important issues for herring management were “fish quality” and “fish prices.” Among “extremely important” issues for management (conservation of the resource, fish quality, fish prices, and fair allocation of the resource), only fish prices had a majority (80.4 %) of marks in the “getting worse in recent years” category. None of the extremely important issues were “getting better in recent years,” according to a majority of respondents. This indicates that respondents feel “fish prices” is an issue to be addressed by herring managers.

With few exceptions, most fisheries disagreed to some extent with the statement that it would be a good idea to implement an equal quota sharing or IFQ management system in their fishery. In a notable exception to this, respondents from the Southeast purse seine fishery generally support (71% mildly or strongly) an equal quota sharing system in their fishery.

No significant difference existed between the mean answers of owners and non-owners of

IFQ shares as to whether it would be a good idea to implement an IFQ-style management system in their herring fishery. Attitudes toward implementing an IFQ management system in herring fisheries were identical, regardless of whether participants had prior experience with IFQ management systems in other fisheries.

Survey respondents indicated that implementation of an IFQ sharing system would hurt “people with little or no catch during qualifying years.” “Crewmembers” and “Alaska fishermen or fisherwomen” would be hurt the most by implementing an equal quota sharing system in their fishery.

Are Alaska herring fisheries ready for an alternative management system? Overall, survey respondents have expressed unfavorable views toward implementing IFQ or equal quota sharing systems in Alaska roe herring fisheries. However, it is unclear whether participants in the herring fisheries would benefit from improved safety measures or increased prices for their catches if either alternative system is implemented. Additional insights may be gained from close study of British Columbia's newly adopted system for managing its herring roe fisheries.

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