

SUPPLEMENTAL SOCIAL IMPACT ASSESSMENT

of the

North Pacific Fishery Management Council Specified License Limitation Options for the North Pacific Groundfish and Crab Fisheries

prepared for

**The North Pacific Fishery Management Council
Anchorage, Alaska**

prepared by

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List of Acronyms and Abbreviations

ADF&G	Alaska Department of Fish and Game
ADOL	Alaska Department of Labor
AMCK	Atka Mackerel
BAIR	Bairdi Tanner Crab
BSAI	Bering Sea/Aleutian Islands
CDL	Community Development License
CDQ	Community Development Quota
CGOA	Central Gulf of Alaska (Kodiak)
CP	Catcher-Processor
EA	Environmental Assessment
EGOA	Eastern Gulf of Alaska (East of Kodiak)
FLAT	Flatfish, several species
FLOT	"Floating" category, implies no real attachment to any one port
H&G	Headed and Gutted (type of fish product)
IAI	Impact Assessment, Inc.
IFQ	Individual Fishing Quotas
ITQ	Individual Transferable Quotas
KING	King Crab, several species
MSC	Miscellaneous groundfish
NPFMC	North Pacific Fishery Management Council
OPIL	Opilio Tanner Crab
OTAN	Other Tanner Crab, non-specified
PCOD	Pacific Cod
PLCK	Alaska Pollock
RIR	Regulatory Impact Review
ROCK	Rockfish, several species
SIA	Social Impact Assessment
TAC	Total Allowable Catch
UNK	Unknown
WGOA	West Gulf of Alaska (essentially west of Kodiak)

1.0 INTRODUCTION

This document has been produced for the North Pacific Fishery Management Council (NPFMC) by Impact Assessment, Inc. (IAI). Its purpose is to provide information to aid the Council in establishing a management alternative for existing groundfish and crab fisheries in the Gulf of Alaska and Bering Sea/Aleutian Islands areas. While various types of management alternatives have been discussed over the years -- for example, general license limitation and/or individual fishing quota (IFQ) systems -- specific configurations are now being considered for implementation. The individual license limitation configurations being examined are a part of the larger process of consideration of a comprehensive limited entry program, which may evolve into an IFQ program.

Given that any new management system will likely result in social and economic impacts, these configurations are being carefully considered. Earlier research provided the NPFMC with a *Sector Description and Preliminary Social Impact Assessment* (IAI 1994). This document builds on that earlier research and presents a limited impact assessment for the specific license limitation options described below for the area's crab and groundfish fisheries. This analysis is intended to serve as a "bridging" document between the earlier, broader study, and several of the more prominent systems configurations under review by the Council.

This report is organized into three sections: (1) an introductory description of the purpose and organization of this report and a brief explanation of the background and limitations of this effort; (2) a description of some of the potential effects on the crab fishery sectors of a license limitation configuration for which we were provided license distributional information (Section 2); and, (3) a similar analysis for the sectors within the groundfish fishery (Section 3).

The information presented in this document is based on the Council's data regarding license and endorsement distributions by vessel class for two specific configurations for crab and three specific configurations for groundfish. Within each of these fishery management options, the major difference is in the qualifying periods. The qualifying period for each fishery is used to define which historical catch information is used as the basis for license/endorsement allocation. As a result, it is the effects of this variable which are of central interest in this document.

In addition to the primary options outlined for both the crab and groundfish fisheries, each of which includes a "status quo" option as measure of current (1993) activity, the NPFMC provided several additional configurations in order to derive specific information to aid the analyses of potential impacts. These configurations, however, were not expected to be analyzed in and of themselves; rather, they were intended for use in calculating and comparing aspects of the primary configurations. For example, the information produced from calculating the total number of vessels active in harvesting species for each of the qualifying periods for which we were given primary configurations can then be used in the following way: it can be compared to the license/endorsement distributions for each primary configuration to draw some conclusions about the "typical bundle" of license/endorsements allocated within each vessel class. This information can finally be placed within the context of the *Sector Description* (IAI 1994) for a

qualitative judgement as to the overall effect of that alternative on that sector.¹ The table below summarizes the specific configurations being examined in this report.

Table 1-1 Summary of License Limitation Configurations			
Fishery	Configuration Number*	Qualifying Periods/Description of Configuration	Additional Explanation
Groundfish	G1B15411	January 1, 1990 through December 31, 1993	Primary Options
	G1B15811	January 1, 1988 through June 27, 1992	
	G1B15X11	January 1, 1993 through December 31, 1993 / included as a measure of the "status quo" or current participation.	
	G1115X11	These secondary configurations can be used to calculate the total number of vessels active in harvesting groundfish for each of the qualifying periods for the Primary Options, above.	Secondary Options. These were provided by NPFMC to derive information to aid discussions about Primary Options; not expected to be analyzed herein.
	G1115411		
	G1115811		
	G1315X11	Appeared less useful for comparisons of license/endorsement distributions for primary configurations. This coupled with time constraints resulted in the omission of these files from the assessment presented in this document.	
	G1315411		
G1315811			
Crab	C1314X1	January 1, 1993 through December 31, 1993 / included as a measure of current activity	
	C131431	A more complicated scheme tailored to when crab fisheries were actually (historically) open as well as a period of more recent participation in crab fisheries / a specific area/species option	
	C1114X1	The use of these single-license configurations resulted in a calculation of the total number of vessels which harvested crab for each of the two Primary Options. This help facilitate a qualitative assessment of the effect of more options presented in the "Nature of Licenses" section of the crab discussion (Section 2).	Secondary Options
	C111431		
	C1214X1	Immediate usefulness of was limited; thus, these species-license configurations were only minimally employed in this analysis.	
C121431			
*The items in this column refer to the NPFMC numbering scheme (as set forth in the Council Recommendations memo of December 8, 1994) for components and alternative elements affecting initial assignment for a license limitation program. This numbering schema depicts all aspects of the license proposal, i.e., the class of license, fishery by species and area, ownership, vessel class, and landing qualifications.			

¹This judgement, however, does not necessarily apply to the individual operators within that sector. Our focus here is on the sector level of analysis, not on impacts to individual operations.

The only direct comparisons that can be made among the configurations is based on the qualifying periods. Ideally, more general assessments about the likely magnitude of potential social effects of different options based on each of the individual "decision points" within the configurations would be beneficial. It should be noted, however, that the foundation for this generally high-level summary is the earlier *Sector Description* document (IAI 1994) which is qualitative in nature and based on limited data. The distributional information provided to us for this analysis of specific configurations does not address these issues.

As requested by the Council, this document includes, where possible and appropriate, comments regarding the components and alternative elements affecting the ownership, use, and transfer of licenses. In most cases, no good information exists upon which to base a discussion of these issues, thus statements to this end would be more speculation than assessment. Each component is discussed, in turn, and in those cases where some supportable statement is possible it has been offered.

The *Sector Description and Preliminary Social Impact Assessment* (IAI 1994), which was produced for the Council, included an analysis of the license limitation management option. This analysis, however, was general as no specific options were outlined at that time, and both license limitation and IFQ systems were under consideration. The Council directed that analysis in the *Sector Description and Preliminary Social Impact Assessment* be done from a sector (industry-based) perspective, examining distributional changes within the fishery, as opposed to a community or regional perspective. This perspective or frame of reference is, of course, a useful and, indeed, critical one, but its bounds must be recognized. Framed in this way, the data do not lend themselves to impact analyses considered from geographically based units of analysis. This charge of examining sector impacts, combined with problems acquiring access to data due to confidentiality concerns, limited the variety of social impacts that could be discussed in that report; those same limitations apply to the current study as well.

Field collection efforts for the original research were focused primarily on constructing profiles of the various sectors involved in the fisheries. No new fieldwork could be performed for this specific analysis; existing information derived from fieldwork is not extensive enough for a social impact assessment extending beyond effects on industry sectors. Discussion of the effects of a license limitation system on fishery participants outside of those sectors receiving licenses (for example, processors) or a discussion of impacts on regions and communities is not currently possible, except in the most exceptional of cases (e.g., when there is a large effect on a sector, and that sector is concentrated in one region or community). It is important to note that even in the absence of potential economic impacts, significant social impacts may occur as a result of a license limitation plan. As an example, social impacts may arise if the relationships between fishery participants are rearranged or otherwise affected. Again, however, that is beyond the scope of the current effort.

The use of the earlier work in this analysis presents an additional challenge: the limited data (1992 only) that the Council was able to provide on a sector basis used a preliminary vessel/processor classification system to define sectors. This system was in turn used to guide fieldwork and to organize that report. Since that time, Council staff has refined and elaborated the classification system, and extended the number of years of fishery data to which it may be

applied. The earlier report has not been modified in terms of the sector definitions and descriptions nor to incorporate other years of data. However, despite these differences in vessel categorization, information from the *Sector Description* document is utilized in this current effort. In order to facilitate comparisons of this study and the earlier work, a short discussion comparing the "Old" vessel classification system to the "New" one -- in essence, a means of translating one to the other -- is provided below. Unlike the earlier work, operations that process *only* are not considered here as they are allocated no licenses under a license limitation program (although there may arguably be some social effects of such a program on such processors).

1.1 TRANSLATION OF VESSEL CLASSIFICATION SYSTEMS

Table 1-2 serves as a key aid for the comparison of the "Old" and "New" vessel classification systems. Similar categories are compared in terms of the number of vessels counted, and major differences are accounted for in the "Comments" block by differences in definitions between the two systems. The most immediately noticeable difference is that the "Old" system has many fewer categories and subcategories than the "New" system. This reflects the preliminary nature of the "Old" system and its focus upon groundfish and crab harvest. Groundfish and crab were used in the "Old" system as the basis of definition for vessels, even if their "main" emphasis was on one or more other fisheries. This is especially noticeable for the smaller vessels, which tend to be more diversified and variable.

The "New" system is more explicitly regular and hierarchical in nature. All alphanumeric class codes signify gear specific classes. Those marked with an asterisk are presumed to depend primarily upon the gear specified by the code, but are also known to use other gear. All trawl and pot vessels are 58 feet or longer -- shorter vessels are either longliners or multi-gear vessels. Any vessel that uses trawl gear is classified as a trawler (either with or without an asterisk). Any vessel 58 feet or longer which uses pots but not trawl gear is classified as a pot vessel. Longline vessels can be any length, but are constrained to using only longline and/or jig gear. Multi-gear vessels less than 58 feet long are classified into one of a number of "New" categories.

We will discuss the explicit differences between the two systems on a sector-by-sector basis, for the most part using "New" system definitions. Thus, unmodified vessel class references (for example "TH1") will be "New" system classes, and references to "Old" system classes will be modified with "Old" (for example "'Old' TH1").

The trawl processor classes (TP) are essentially the same. The differences in numbers, especially in TP3+TP3* versus "Old" TP3, would appear to be due to the hierarchical preference given to trawl gear by the "New" system. The difference between CP1 and "Old" PP1 is more complex, because of the dynamics of the fishery. "Old" PP1 must be compared to the total of CP1, PCP1, and CP1/LP1. This does not mean that there is a one-to-one correspondence between these two groups. Rather, it is a recognition that "pure" crab processors have either been going out of business or, more probably, diversifying or otherwise changing their business. In other words, the old "PP1" class confounded a number of different operations (and perhaps misclassified some others). Longline processors are relatively consistent between the "New" and the "Old" system. The trawl harvester classes are more variable. Trawlers 125 feet and longer

are consistent between the two systems, which is logical as these vessels are relatively few in number, are quite expensive, and are built primarily to trawl. Intermediate size trawl vessel classes are less consistent. TH2+TH2* is greater than "Old" TH2, but this is consistent with the "New" system's hierarchical trawl preference. The TH3 vessel classes are quite consistent with each other.

The large differences in the two systems appear in the remaining categories. The "Old" PH1 vessel class is roughly equivalent to PH1+PH1*, with the "excess" in the "New" classes perhaps coming from "Old" LH1. "Old" PH2 is much larger than PH2+PH2*, however. The "New" classes are between 58 and 124 feet long, whereas the "Old" class contained vessels less than 125 feet long, and thus conceivably less than 58 feet long. Our field interviews support the view that there are in fact a significant number of such vessels, which in the "New" system would appear as SEN/PH2 vessels. It should be noted that there is still some confusion in the system at this point. PH2 vessels are defined as being between 58 and 124 feet in length, while SEN/PH2 vessels are less than 58 feet in length. The "PH2" designation is thus used in an inconsistent way, except when viewed in the context that this is actually a split of the "Old" PH2 vessel class (although the SEN/PH2 vessel class also clearly contains a significant portion of what had been "Old" LH3 vessels).

The "Old" LH1 vessel class is much larger than LH1. The latter is gear specific, while the first is not, which could account for the difference. It is difficult to understand what category these other boats would fit in the "New" system, however. The LH2 class is much larger than the "Old" LH2 class. "Old" LH2 included only vessels 50 to 58 feet long, whereas LH2 includes all vessels less than 58 feet. However, LH2 is also gear specific, whereas "Old" LH2 was not. One difference would increase the size of LH2 relative to "Old" LH2 while the other would decrease it. Additionally, however, longline-only vessels from "Old" LH3 would be classified as LH2. Since "Old" LH3 was a very large vessel class, but was not included in the "New" vessel classification system, a partial reallocation to LH2 explains the size of that vessel class. A large portion of "Old" LH3 also clearly constitute the bulk of SEN/PH2, SEN/TH4, SEN*, GL1*, GL2*, and probably CSEN* as well. None of these vessel classes existed in the "Old" system and the most obvious correspondence in the "Old" system is the very large and ill-defined "Old" LH3 vessel class. The "Old" MSC vessel class is also a partial source, as it is much smaller in size than the MSC vessel class. This indicates that the "Old" LH3 vessel class was less a class of longliners than it was an eclectic collection of relatively small vessels which fished a number of different gears.

Table 1-2
Total Vessels by Vessel Class in the Groundfish and Crab Fisheries, 1992
"New" NPFMC definitions compared to "Old" preliminary definitions

"New" System		"Old" System		Comparison Comments
Code	#	Code	#	
TP1	24	TP1	22	Definitions essentially the same, but see the general trawl comment above.
TP2	16	TP2	14	
TP3	22	TP3	31	"New" definition is trawl gear only. Combination of "New" TP3 + New TP3* approximates "Old" TP3 (see trawl comment in table notes at bottom).
TP3*	19			
CP1	12	PP1	31	"New" definition processing (brine tanks) and gear specific (pots). "Old" definition more liberal for both (see PCP1, CP1/LP1).
PCP1	11			"New" class probably contained within "Old" PP1.
LP1	42	LP1	57	Definitions essentially the same. "New" definition more gear specific (longline).
CP1/LP1	14			"Old" definitions distributed members of "New" class among LP1 and PP1.
TH1	14	TH1	21	"New" (but not "Old") definition gear specific (trawl).
TH1*	7			Same as "New" TH1 BUT trawl + other gear.
TH2	12	TH2	42	"New" (but not "Old") definition gear specific (trawl).
TH2*	57			Same as "New" TH2 BUT trawl + other gear (see trawl comment).
TH3	21	TH3	80	"New" (but not "Old") definition gear specific (trawl). "New" length definition is less than 90 feet. "Old" length definition was between 58 and 90 feet.
TH3*	59			Same as "New" TH3 BUT trawl + other gear.
PH1	35	PH1	36	"New" (but not "Old") definition gear specific (pot).
PH1*	8			Same as "New" PH1 but used other pots + other gear (but not trawl).
PH2	94	PH2	379	"New" (but not "Old") definition gear specific (pot). "New" length definition between 58 and 124 feet. "Old" length definition less than 125 feet.
PH2*	147			Same as "New" PH2 but used other pots + other gear (but not trawl).
LH1	61	LH1	101	"New" (but not the "Old") definition gear specific.
LH2	345	LH2	129	"New" (but not the "Old") definition gear specific. "New" definition includes all vessels less than 58 feet long. "Old" definition included only vessels between 50 and 58 feet long.
Not a "New" Class		LH3	988	"Old" definition less than 50 feet, not longline gear specific.

"New" System		"Old" System		Comparison Comments
Code	#	Code	#	
SEN/TH4	112	TH4	12	Seine vessels less than 58 feet which also used other gear (depending on class). Many included in "Old" classes LH3 or PH2 or MSC.
SEN/PH2	489			
SEN*	160			"Old" definitions did include a class TH4 but most actual TH4s apparently classed as "Old" MSC.
CSEN*	27			
GL1*	165			Gill net boats 32 or more, less than 58 feet -- probably use other gear as well (not seine). Distributed among various "Old" small boat classes.
GL2*	76			
DRG	7			"New" definition is gear specific. Part of "Old" MSC class.
MSC	36	MSC	146	"Old" MSC class was quite mixed, and included a good number of TH4 vessels.
Unknown (?)		UNK	16	
2092		2105		Total numbers of vessels differ by 13.

NOTES: For the "New" vessel classes, ANY vessel over 58 feet long which used trawl gear is classified as a trawler (some classes are "pure" trawlers and others are mixed gear). Vessels 58 feet long or less are classified as SEN/TH4. For the "Old" vessel classes, vessels were classified based on their "predominant" gear use so that vessels classed as trawlers by the "New" definitions may have been classed as longline, pot, or miscellaneous vessels. The "New" system "TP" definitions still create several fuzzy sets of vessels. The "New" system enumerates 200 fewer vessels than the "Old" system, a difference of approximately 10%.

1.2 LICENSE DISTRIBUTION

The under the "New" vessel classification system, both the initial and subsequent distribution of licenses will depend upon a number of elements, including: the nature of licenses distributed, the designation of those licenses, and the allowed degree of license transferability. Table 1-3 indicates for the "New" vessel class system the degree to which licenses will be transferable, under the assumption that the two factors of importance for this designation will be catcher versus catcher/processor vessel, and size class. It appears that there would be few limits on the potential availability of licenses on the secondary market, but this will be examined on a sector-by-sector basis, as appropriate, since area/species considerations may create some relatively small license pools.

Transfers within vessel size classes may have unknown consequences. While previous analysis of management options was done by gear type, licenses under the proposed management configurations will be awarded based on vessel size (as opposed to gear type). How transfers within vessel classes will differ from the market forces that now govern fishery participation is not known with precision. It would appear that licenses, in and of themselves (including the fact that they would be transferrable across gear types but within size limits), will not change the relative economics between gear types. The following table (Table 1-3) illustrates those blocks of vessels (shown by the use of double lines in the table) within which transfers could take place under the currently contemplated configurations.

**Table 1-3
Total Vessels by Vessel Class in the Groundfish and Crab Fisheries, 1992
"New" NPFMC definitions Arranged in Possible "License Transfer Classes"**

Code	#	Length Code	Comments
TP1	24	C	LP1 size A vessels likely to have the most restricted pool of transferable licenses. Other classes would appear to be viable in terms of transfer possibilities, at least in regard to license designations.
TP2	16	C	
TP3	22	B,C	
TP3*	19	B,C	
CP1	12	C	
PCP1	11	B,C	
LP1	42	A,B,C	
CP1/LP1	14	C	
LH1	61	C,B,some A	All should have access to a viable pool of transferable licenses in terms of license designations.
DRG	7	A,B	
MSC	36	A,B	
TH3	21	A, some B	All should have access to a viable pool of transferable licenses in terms of license designations.
TH3*	59	A, some B	
LH2	345	A	
NA	NA		
SEN/TH4	112	A	
SEN/PH2	489	A	
SEN*	160	A	
CSEN*	27	A	
GL1*	165	A	
GL2*	76	A	

Code	#	Length Code	Comments
TH2	12	B	All should have access to a viable pool of transferable licenses in terms of license designations.
TH2*	57	B	
PH2	94	B, some A	
PH2*	147	B, some A	
TH1	14	C	All should have access to a viable pool of transferable licenses in terms of license designations.
PH1	35	C	
PH1*	8	C	
2085		Total	
NOTES:			
<p>For the "New" vessel classes, ANY vessel over 58 feet long which used trawl gear is classified as a trawler (some classes are "pure" trawlers, others use additional gear). Vessels 58 feet long or less are classified as SEN/TH4. For the "Old" vessel classes, vessels were classified based on their "predominant" gear use so that vessels classed as trawlers by the "New" definitions may have been classed as longline, pot, or miscellaneous vessels.</p> <p>Each grouping separated by double lines contain vessel-size classes among which licenses/endorsements will be transferable (see comments below on "mixed size" vessel classes).</p> <p>Length codes: A < 60 feet, B = 60 to 125 feet, C >125 feet. Where vessel length is either not part of the vessel class definition or is a mixed class, multiple length codes are indicated. These reflect either the hybrid-size definition of the class or the actual size composition of the class. It is assumed that licenses and endorsements will only be transferrable among catcher vessels in the same size class and among catcher/processor vessels within the same size class. For those "mixed-size" vessel classes, such transfers would only be allowed among the subset of vessels which falls within the appropriate size class. Simply from the grouping of transfer classes in this table, it appears that the "New" vessel class scheme is a better representation (albeit more complicated) than the old one. There are still problems with vessels around 58 feet long and trawlers around 90 feet long, which straddle the three main vessel length categories considered in the Council's options. There are some intermixture of "A" and "B" lengths at 58 feet, due to vessel class definitions.</p> <p>Information based on data files provided by the NPFMC for 1992. 1992 used as base year since that was the only year for which information was available at the time the "Sector Description" report was prepared.</p>			

An additional element that may merit consideration as a social impact in the context of license distribution is the possibility of "predatory" license purchases. Such purchases may be made by fishery participants in an attempt to exclude competitors from the right to fish (or to position themselves in anticipation of one or another set of qualification criteria for a transition to an IFQ-based management regime). Predatory purchases may artificially inflate the value of licenses, and concentrate licenses among those with access to high amounts of capital. The value of this strategy to fishery participants could vary widely based upon transferability specifications (and catch history aggregation/separability guidelines) that have not yet been outlined.

1.3 GENERAL CONSIDERATIONS IN ANALYSIS

An overriding consideration in this analysis lies in the fact that the level of analysis in this and the previous study has been the sector, not the community or region. This focus limits our ability to make comments on community level impacts. In communities where entry and exits from various fisheries over time is common, licenses may present a number of different social impact issues. If a large number of people obtain licenses and endorsements, there may be pressure to fish on speculation of future value, artificially increasing the number of people fishing at any one time, with a number of possible consequences. If more people obtain licenses than desire to fish in the immediate future, additional income derived from sales of licenses (and the distribution thereof) could have consequences in and of itself. Additionally, there may be social pressures regarding the "alienation" of fishing opportunities from the community if licenses are sold (i.e., potentially permanent removal of historically available opportunities). We know from previous field research that some communities have small-scale fisheries with levels of participation that are widely variable across years. In a number of communities, the opportunity to fish has been an income producing option that was available over time, offering individuals the flexibility to enter and exit at different points in their lives, and as the relative value of fishing and other income opportunities varied over time. Licenses may represent a fundamental change in this structure, depending on eventual patterns of transfer. Further, if a license limitation option restricts participation in a fishery that at some point in time has been part of the fishing repertoire of vessels, then there is a further potential for social impacts (even if there is an "excess" of licenses). These issues, as well as additional concerns, are briefly examined below.

The situation presented by these management options is unique. An extensive literature review of fishery management systems has not provided any satisfactory models of the likely outcome and impacts of the proposed configurations. Of key importance is the fact that fishermen are apparently going to operate under the assumption that obtaining a license is a necessary, but not sufficient, condition for obtaining subsequent individual fishing quotas. Fishermen are highly unlikely to operate as if the license limitation system is permanent management tool to be taken at face value. It is a strongly felt sentiment within many of the sectors of these fisheries that any license limitation system is a transitional step to an IFQ management strategy. It is not clear what the precise relationship between license limitation and subsequent IFQs will be. However, what is clear is that given industry sentiment about the transitional nature of the license limitation strategy, individuals are likely to fish under marginal (or adverse) economic conditions in order to have an active license and to build a catch history for individual fishing quota awards. The license limitation system may serve to dampen entries and exits from the fishery. Flexibility in fishing options, especially for smaller operations, is frequently vital to maintaining economic viability. Removing or limiting such fishing options may therefore have long-term effects on the operations which utilize the fisheries as a seemingly marginal, but nevertheless important, part of their overall patterns.

A preliminary result of the management configurations being considered is that licenses will have a market value. Indeed, impacts may result from income derived from the sale of licenses. The specific value of such licenses is, however, unknown. It can be assumed that there will be few social impacts resulting from exclusion from participation, given that the number of licenses

that would be issued under the various alternatives we have been given to analyze is generally greater than the number of individuals annually involved in the fisheries. Analysis of potential impacts of having more licenses than vessels currently fishing is problematic, and the generally held assumption that social impacts would only arise through participant exclusion may be inappropriate; social impacts may occur despite the high number of licenses awarded under the proposed management configurations. Although these impacts would likely be less dramatic than those that would come about through exclusion, the creation of a new pool of licenses has the potential to create new types of relationships (and change old relationships) among participants in the fishery. For example, licenses may be "rented" or leased. This may have consequences for the value of licenses and endorsements, and unresolved is the issue of who "gets credit" for the catch history associated with the fishing of the license (and what role that catch history will have in subsequently considered IFQs). In Chapter 2 this issue is raised in regard to CDQs and the possibility of CDLs.

2.0 POTENTIAL IMPACTS OF A LICENSE LIMITATION FOR CRAB FISHING

This chapter discusses some of the potential impacts of proposed license limitation configurations on the crab fishery in the NPFMC management areas. This discussion includes considerations about license classes, nature, recipients, designations, qualifying period, landing requirements, and alternative components.

The specific configuration IAI was charge with for primary analysis was "Configuration 111431." Following the Council coding scheme, this indicates:

- a single class of licenses (100000);
- a single license for all species and areas (10000);
- current owners as license recipients (1000);
- license designation based on catcher vessels & catcher/processors and vessel length (400);
- a qualifying period of 6/28/89 - 6/27/92 [6/29/80 - 6/25/83 for Dutch Harbor Red & 6/29/85 - 6/25/1988 for Pribilof Blue. These two groups must also have made a landing in any Federally managed crab fishery between 6/29/89-6/27/92. For Norton Sound Red and Blue King Crab fisheries, and for Pribilof Red King Crab, must have made a landing in 1993 or 1994] (30);
- and, a landing requirement with no minimum set (1).

In this section, this configuration is contrasted to the base year configuration of 1993, with cross references to other configurations as appropriate.

2.1 LICENSE CLASSES

All specific data provided to IAI assume that there will be a single class of licenses. IAI does not have access to data on historical participation in the crab fisheries from which distributions of "A" and "B" licenses could be derived; thus, this class of options is not addressed.

2.2 NATURE OF LICENSES

Regarding the nature of licenses, IAI can assess the relative effects of a single license option (C111431) as compared to the specific area/species option (C131431) for which we were provided license distributional information. Although not charged with the full analysis of the species license/endorsements configuration (C121431), we were given license distributional information by vessel class for this option, and can make some partial comparisons with the other two options (C111431 and C131431).

The major potential social effects to be evaluated all derive from changes in the fishing opportunities available. Our preliminary assumption, since this is a license limitation program, is that this change is more likely to result in a reduction in fishing opportunities available to

those currently fishing, as well as those who may wish to enter the industry in the future. The reduction in opportunity can be either complete (lack of a license) or partial (a limited suite of area/species licenses/endorsements). This is the primary thrust of most of our discussion below. Also raised, however, is the following issue: distributing licenses whose numbers represent a level of fishing effort greater than that of the current fishing fleet may have its own consequences. Chief among these are the potential effects on the license limitation program resulting from the context of its implementation -- it is commonly anticipated to be merely a transitional step to an IFQ program. In addition, it should be noted that there may be impacts stemming from the mere existence of licenses -- having a transferable license worth something where there was nothing before may have its own consequences. The type and breadth of impacts related to the yet-unknown market value of licenses is undetermined.

Table 2-1 displays the number of vessels which harvested crab for each year from 1988 through 1993, and Qualifying Period 30, by the latest version of the Council staff's vessel classification system. The yearly totals show a reasonable stability over time, although the trend was for a gradual increase from 1988 to a peak in vessel numbers in 1991 and a gradual decrease since then. Of course, some sectors are more stable than others, and individual vessels leave and others enter the fishery every year. Those vessel classes with the largest year-to-year changes are multi-gear, smaller vessel classes. The number of vessels that would qualify for a license based on Qualifying Period 30 (multi-year, varies by species) is what one would expect from such a pattern: for most vessel classes, more vessels would qualify based on Qualifying Period 30 than had fished in any given single year. Vessel classes CP1/LP1, DRG, and TP2 are the only exceptions; differences for the other vessel classes range from 17% to 1700%. The largest differences are, again, generally in those multi-gear, smaller-size vessel classes which tend to have more variation in fishing activity from one year to the next. Qualifying vessels in the CP1 and LP1 classes would also increase notably. Licenses would be granted, under Qualifying Period 30, to a number of vessel classes which had no reported crab harvest for individual years between 1988 and 1993. These are generally smaller, multi-gear vessels which are assumed to have little recent crabbing history, but do have some historic participation in the king crab fishery.

**Table 2-1
Number of Vessels Which Harvested Crab by Vessel Class and Time Period**

Vessel Class	Year or Qualifying Period						
	1988	1989	1990	1991	1992	1993	Qualifying Period 30
Unknown							1
CP1	7	8	10	11	12	8	18
CP1/LP1	11	11	11	13	14	14	14
CSEN*	0	0	0	0	0	0	1
DRG	1	1	1	1	1	1	1
GL1*	0	0	0	0	0	0	2
GL2*	0	0	0	0	0	0	11
LP1	1	2	4	4	1	2	5
MSC	0	0	1	0	0	0	3
PCP1	5	5	5	5	5	5	7
PH1	24	24	25	32	35	35	41
PH1*	4	4	5	6	7	6	7
PH2	87	85	90	95	93	94	157
PH2*	59	64	79	96	94	76	111
SEN*	0	0	0	0	0	0	1
SEN/PH2	14	16	13	6	4	3	55
SEN/TH4	6	7	4	1	1	1	11
TH1	0	0	0	0	1	0	1
TH1*	2	2	3	5	4	3	5
TH2	0	0	0	0	0	0	18
TH2*	9	13	20	39	40	17	39
TH3	0	0	0	1	0	0	6
TH3*	3	8	7	12	13	5	20
TP1	0	0	0	2	1	0	2
TP2	0	0	0	0	0	1	1
TP3	0	0	0	0	0	0	2
TP3*	2	1	2	2	1	1	2
TOTAL	235	251	280	331	327	272	542

Given any of the proposed qualifying periods, overall participation for each vessel class will not be limited in terms of individual vessels that would qualify. Since the net effect will be to include more vessels than are currently fishing, when examined from the sector perspective there are apparently no immediate social impacts due to vessels being excluded from the fishery. An

analysis of potential negative effects would only be a discussion of the problems that license limitation was intended to address, but does not, because it does not limit participation. Essentially, this would be a restatement of the Problem Statement. The granting of licenses in numbers greater than current fishery participation, all other things being equal, would not have a negative effect (by increasing fishing effort) since under the current open access system everyone who would receive a license could already be fishing. Any potential restriction will not be in terms of vessel exclusion but, rather, would result in the suite of area/species licenses/endorsements that each vessel (owner) would be fishing. Thus, the distribution of these area/species endorsements by vessel class must be examined.

Table 2-2 displays the number of licenses by vessel class for the single license, species license, and area/species license/endorsement configurations. Table 2-3 displays the average number of licenses/endorsements per vessel by vessel sector for each of the configurations. The "single license" columns are essentially a count of individual vessels that would qualify, either in 1993 (C1114X1) or Qualifying Period 30 (C111431). This is reflected in Table 2-3 by the average of one license for each vessel in these classes. Any qualifying vessel would receive a license for all areas and all species. The last four columns of Tables 2-2 and 2-3 are more complex and need more careful interpretation. Comparing column C1214X1 with column C1314X1, and column C121431 with column C131431, reveals the effect of issuing species specific licenses verses issuing area/species licenses/endorsements for crab. The first comparison, based on fishing history from 1993, illustrates very little difference. The second comparison, based on fishing history from Qualifying Period 30, shows a somewhat greater degree of difference because of the additional of area specificity. These differences are quite small, given the increase in license possibilities because of the addition of area specificity (a minimum increase of a factor of 4). This indicates that most crab vessels historically fished a limited number of areas for a limited number of species, such that the association between the two is very strong. Thus, selecting for one will usually select for the other. The reason to incorporate the apparent redundancy of an area/species license/endorsement system rather than an apparently less-complex species-only license system is that the later allows vessels to potentially increase their level of fishing effort more than the former would. That is, the area/species license/endorsement system limits a licensed vessel to a specific fishery, whereas the species-only license would allow a vessel to pursue a species it has harvested before in an area which it had hitherto never fished. It is this potential limitation on the flexibility of fishing operations that is the major predictable potential effect of the license limitation system.

**Table 2-2
Absolute Number of Crab Licenses by Vessel Class by License Limitation Option**

Vessel Class	Configurations					
	Single license		Species Licenses		Area/Species Licenses	
	C1114X1	C111431	C1214X1	C121431	C1314X1	C131431
Unknown		1		1		1
CP1	8	18	16	55	16	63
CP1/LP1	14	14	26	50	26	53
CSEN*		1		1		1
DRG	1	1	2	4	2	5
GL1*		2		2		2
GL2*		11		11		11
LP1	2	5	4	13	4	16
MSC		3		3		3
PCP1	5	7	9	20	9	25
PH1	35	41	67	125	67	144
PH1*	6	7	12	23	12	26
PH2	94	157	190	408	191	503
PH2*	76	111	148	300	149	358
SEN*		1		1		1
SEN/PH2	3	55	3	58	3	59
SEN/TH4	1	11	1	11	1	12
TH1		1		1		1
TH1*	3	5	6	16	6	17
TH2		18		18		18
TH2*	17	39	32	99	33	107
TH3		6		6		6
TH3*	5	20	9	30	9	34
TP1		2		6		9
TP2	1	1	1	1	1	1
TP3		2		2		2
TP3*	1	2	2	8	2	9

Table 2-3
Average Number of Crab Licenses Per Vessel by Vessel Class by License Limitation Option

Vessel Class	Configurations					
	Single license		Species Licenses		Area/Species Licenses/Endorsements	
	C1114X1	C111431	C1214X1	C121431	C1314X1	C131431
Unknown		1.00		1.00		1.00
CP1	1.00	1.00	2.00	3.06	2.00	3.50
CP1/LP1	1.00	1.00	1.86	3.57	1.86	3.79
CSEN*		1.00		1.00		1.00
DRG	1.00	1.00	2.00	4.00	2.00	5.00
GL1*		1.00		1.00		1.00
GL2*		1.00		1.00		1.00
LP1	1.00	1.00	2.00	2.60	2.00	3.20
MSC		1.00		1.00		1.00
PCP1	1.00	1.00	1.80	2.86	1.80	3.57
PH1	1.00	1.00	1.91	3.05	1.91	3.51
PH1*	1.00	1.00	2.00	3.29	2.00	3.71
PH2	1.00	1.00	2.02	2.60	2.03	3.20
PH2*	1.00	1.00	1.95	2.70	1.96	3.23
SEN*		1.00		1.00		1.00
SEN/PH2	1.00	1.00	1.00	1.05	1.00	1.07
SEN/TH4	1.00	1.00	1.00	1.00	1.00	1.09
TH1		1.00		1.00		1.00
TH1*	1.00	1.00	2.00	3.20	2.00	3.40
TH2		1.00		1.00		1.00
TH2*	1.00	1.00	1.88	2.54	1.94	2.74
TH3		1.00		1.00		1.00
TH3*	1.00	1.00	1.80	1.50	1.80	1.70
TP1		1.00		3.00		4.50
TP2	1.00	1.00	1.00	1.00	1.00	1.00
TP3		1.00		1.00		1.00
TP3*	1.00	1.00	2.00	4.00	2.00	4.50

An assessment of the degree to which vessels in any vessel class may potentially be limited or restricted by the suite of licenses initially allocated to them (or otherwise obtainable through transfers) can only be addressed by an examination of the initial distribution of licenses and the size of any given pool of transferable licenses. The initial distribution of licenses is discussed below in terms of the information contained in our earlier *Sector Description* document (IAI 1994) in regard to the "typical" yearly fishing activity of such a vessel, and what was indicated as likely options for such a vessel to explore in terms of new or different fisheries. The size of any pool of transferrable licenses is described under the "license designations" in Section 2.4.

The *Sector Description and Preliminary Social Impact Assessment* document (IAI 1994) indicated that three vessel classes -- PH1, PH2, and PP1 -- harvested the vast majority (90% or more) of the crab species of concern. These "old system" vessel classes translate into "new system" vessel classes of PH1, PH1*, PH2, PH2*, CP1, and CP1/LP1. Although some vessels in all other vessel classes would be allocated at least one area/species crab license, only five such classes would receive a significant number -- SEN/PH2, SEN/TH4, TH2, TH2*, and TH3*. Other vessel classes are not included in the following analyses. The reasons for this are as follows: other vessel classes are assumed not to have a strong stake in this fishery, or those few vessels in those classes receiving licenses are assumed not to effect the overall level of effort or general conduct of the fishery.

We will examine the "outlying" vessel classes first (SEN/PH2, SEN/TH4, TH2, TH2*, and TH3*), using license distributional information from configuration C131431. Table 2-4 indicates that the majority of licenses distributed to these classes will be for king crab, an exception being vessel class TH2*. Also, most such vessels will receive a single license, again with the exception for vessel class TH2*. These licenses are based upon limited crab harvest activity, and all of these vessel classes are smaller boats (relatively) and tend to be quite diverse in their fishing patterns. Except for the TH2* vessel class, the social implications of the initial allocation should be minimal. For vessel class SEN/PH2, there were 55 vessels which would receive a total of 59 area/species licenses, distributed as shown in Table 2-4. Most of these vessels would receive only one such license, for a specific fishery. As Table 2-4 indicates, 42 of these licenses are for red king crab. The information available would indicate the crab fishery is an irregular rather than a core portion of these vessels' fishing round. Few vessels from this class have crabbed recently (see Table 2-1), and by far, the bulk of this vessel class harvests groundfish rather than crab (800+ vessels compared to 55). Approximately 20 of these vessels would receive licenses for both crab and groundfish (see Table 2-7). Thus, it appears that although crab fisheries would play an important part in the fishing round for these vessels (based on limited interview information), they do not at present. Most of the licenses that would be distributed to this vessel class would be based on historical king crab catch. These licenses may represent a form of unanticipated future income opportunities for these vessels, should these fisheries ever rebound, but they would not be expected to generate any significant overall social impacts.

For vessel class TH2*, there were 39 vessels which would receive a total of 107 area/species licenses/endorsements, distributed as shown in Table 2-4. This is more clearly a multi-gear, multi-fishery vessel class, as approximately 60 TH2* vessels would qualify for groundfish licenses and approximately 40 would qualify for both groundfish and crab licenses. Thus, it

would appear that all TH2* vessels which would receive crab licenses would also receive groundfish licenses -- an expected conclusion based on the definition of this vessel class (essentially PH2 vessels which also trawl). Furthermore, the "average" crab TH2* vessel would receive close to three crab licenses.

The distribution of crab area/species licenses over geographic areas are clustered around Bering Sea tanner crab and Bristol Bay red king crab. As larger multi-gear, multi-fishery vessels this is an understandable and expectable pattern. While it is clear that this vessel class has focussed more on groundfish than on crab (other than tanner) in the recent past, a more diversified fishing pattern makes them more viable fishing operations. It appears that about 67% of the TH2* vessels which qualify for some type of license would have some form of a crab/groundfish license suite. That segment of this vessel class not allocated crab licenses may be less viable, although at least 10 are currently operating, combining trawl and some other non-crab/non-trawl fishery. Also, just as clearly, some "pure" TH2 vessels are economically viable. Thus it would not appear that the initial distribution of crab licenses would disadvantage a significant segment of this vessel class or have social impacts of note.

Table 2-4
Distribution of Crab Area/Species Licenses
Configuration C131431, Vessel Classes SEN/PH2, SEN/TH4, TH2, TH2*, and TH3*

Species	Area	Number of Licenses by Vessel Class				
		SEN/PH2	SEN/TH4	TH2	TH2*	TH3
Blue King	St. Matthew				8	1
	Pribilof	1		2		
	Bristol Bay					1
Brown King	Adak					
	Dutch Harbor					
C. bairdi	Bering Sea	2	1		35	7
	Western Aleutian	4				
	Eastern Aleutian	8	1		1	
C. opilio	Bering Sea	2			17	4
	Eastern Aleutian				1	
	Western Aleutian					
Red King	Bristol Bay		3		38	12
	Pribilof	8	7		6	8
	Dutch Harbor	8		16		
	Adak				1	
	Norton Sound	26				1
TOTAL Licenses		59	12	18	107	34
# Qualifying Vessels		55	11	18	39	20

The vessel classes PH1, PH2, PH1*, and PH2*, which harvested the vast majority of the crab species of concern, are similar and related in that all are predominately pot boats. Class "1" vessels are 125 feet or longer, while class "2" are less than 125 feet but at least 58 feet long. Those marked with an asterisk ("*") use gear in addition to pots, but do not trawl. Most are predominately crab boats, but a significant number of PH1*, PH2, and PH2* boats will also receive groundfish licenses (but the PH1* vessel class is quite small).

The most important contemporary fishery for these four vessel classes are Bering Sea tanner crab (C. bairdi and C. opilio); however, king crab was the predominant component of historical participation. Table 2-5 displays the distribution of crab area species licenses for each of these vessel classes by species and area. An interesting feature of this table is that while the number of qualifying vessels for each vessel class is larger than the number of such vessels which fished in any given year, the actual number of licenses distributed for the major fisheries (Bering Sea C. bairdi and C. opilio, various king crab fisheries) very closely mirrors the yearly average of vessels which crabbed in the past. Since we have no information on the suite of licenses

allocated to individual vessels (owners), other than the aggregate totals by vessel class, we cannot discuss whether operations will receive a diversified enough suite of licenses to support their current operation. Certainly the aggregate vessel class initial license allocations would support the historical level of fishing effort, and just as clearly would not support such a "typical" fishing operation for all vessels which qualify for at least one license. However, given the diversified and varied fishing patterns of vessels in these vessel classes (including the TH2 and TH2* vessels discussed above), it is not possible to estimate how many operations would not be viable, especially after market forces begin to redistribute licenses. As a result of free-market forces, i.e., "the invisible hand," the ultimate distribution of licenses should be about the same number of diversified operations as are currently fishing, with more "marginal" operators selling their licenses.

Species	Area	Number of Licenses by Vessel Class			
		PH1	PH1*	PH2	PH2*
Blue King	St. Matthew	16	2	32	13
	Pribilof	5		34	
Brown King	Adak	4	1	14	2
	Dutch Harbor	3	1	8	
C. bairdi	Bering Sea	34	7	95	94
	Western Aleutian		1		1
	Eastern Aleutian			2	4
C. opilio	Bering Sea	33	7	93	82
	Eastern Aleutian				2
	Western Aleutian			1	1
Red King	Bristol Bay	30	6	95	97
	Pribilof	13		61	57
	Dutch Harbor	5		64	
	Adak	1	1	4	4
	Norton Sound				1
TOTAL Licenses		145	27	505	360
# Qualifying Vessels		41	7	157	111

Table 2-6 displays the distribution of licenses for vessel classes CP1 and CP1/LP1 under configuration C131431. These two classes show similar distributions. There are, however, differences between the classes. CP1/LP1 vessels incorporate groundfish harvest/processing. An additional difference is that the number of qualifying vessels for the CP1 is above the yearly

average for the recent past; whereas for the CP1/LP1 class, the number of qualifying vessels and yearly average are very close. Thus, while all qualifying CP1/LP1 vessels will receive Bering Sea opilio and bairdi licenses, and most if not all will receive at least one king crab license, this is not true of all qualifying CP1 vessels. This implies that CP1/LP1 vessels will be able to continue the fishing activities by which they qualified for the licenses, for the most part, whereas only a core of CP1 vessels is likely to be able to do so. CP1 vessels receive more king crab licenses than will CP1/LP1 vessels, which implies that CP1 vessels qualify on more historical catch history than do CP1/LP1 vessels. Indeed, it is likely that CP1/LP1 vessels are former CP1 vessels that diversified into groundfish once king crab fisheries declined (or entered the fishery after this decline); other CP1 vessels concentrated on other species of crab. The recent yearly average number of CP1 vessels fishing would be supportable from the initial allocation of licenses, although we have no information on which vessels will receive specific suites of licenses. Thus, although the recent "CP1 fleet" is supportable with the anticipated allocation of licenses to the sector, with an "excess" of licenses to more marginal (currently non-fishing) operations, it can not be said with certainty that the initial allocation will actually have this result. Market forces would be presumed to guide the result in that direction.

**Table 2-6
Distribution of Crab Area/Species Licenses
Configuration C131431, Vessel Classes CP1 and CP1/LP1**

Species	Area	Number of Licenses by Vessel Class	
		CP1	CP1/LP1
Blue King	St. Matthew	4	6
	Pribilof	7	
Brown King	Adak	8	
	Dutch Harbor	5	3
C. bairdi	Bering Sea	12	14
	Western Aleutian		1
	Eastern Aleutian	1	
C. opilio	Bering Sea	12	14
Red King	Bristol Bay	11	12
	Pribilof		2
	Dutch Harbor	2	
	Adak	1	1
TOTAL Licenses		64	54
# Qualifying Vessels		18	14

Throughout the discussion above, it has been indicated that in several of the vessel classes there is a large proportion of crab vessels that will also receive a license for groundfish. Table 2-7,

below, represents the intersection of the crab and groundfish vessels sets. For example, as many as 36% of the SEN/PH2 vessels which fish for crab may receive groundfish licenses, approximately all of the TH2* and TH3* vessels, and most of the PH2* vessels (63%), among others. In each of the configurations displayed, some vessels will receive licenses for both fisheries; however, the configuration with includes Qualifying Period 30 for crab allows for the greatest number of licenses to vessels which fish both crab and groundfish.

**Table 2-7
Vessels Which Harvested Both Groundfish and Crab for Various Time Periods**

Vessel Class	Qualifying Period		
	1993 ("X")	Groundfish "400" Crab "30"	Groundfish "800" Crab "50"
CP1		4	1
CP1/LP1	3	28	24
DRG			2
GL1*		1	
LP1	1	10	8
PCP1	2	11	10
PH1	2	12	8
PH1*	2	3	2
PH2	4	29	23
PH2*	17	70	62
SEN*		1	
SEN/PH2	1	20	15
SEN/TH4	1	12	7
TH1*	2	5	3
TH2*	7	40	39
TH3		2	1
TH3*	4	21	19
TP1		4	5
TP3	1	2	
TP3*	1	6	7
TOTAL	48	281	236

NOTE: Numbers in this table are approximations, due to the necessity of using several databases (which did not match up to each other perfectly) to derive this information.

2.3 LICENSE RECIPIENTS

All configurational data IAI was given assumes that only current vessel owners are allocated licenses/endorsements. Logically, however, all other options (including a possible skipper license program) would result in at least the same number of licenses/endorsements within each industry sector, and probably more (and in some cases significantly more).² Information to assess the gains or losses under the different options does not exist in any meaningful form. It is reasonable to hypothesize that those non-vessel owners currently participating in the fishery who wish to continue to participate will try to find a way to do so. In following, the distribution of licenses under the configurations discussed herein would reflect a level of fishing effort greater than the historical average -- that is, an "excess" over current number of vessels actively fishing - - therefore, there may be licenses that are unfished and potentially available. Adding a license requirement may increase the capital investment needed for someone to enter the fishery, and may possibly reduce the capital value of vessels, although this depends on transfer rules and whether catch history is linked to the license or the vessel for an eventual transition to IFQs.

The assumed eventual transition of a license system to an IFQ system could have large effects upon at least some industry sectors, with concomitant social effects. Given the linkage of catch history with either the license or the vessel, a portion of hired skippers and crew could be expected to, in effect, be expelled from the industry through such factors as consolidation and operating with smaller crews during slower-paced seasons. These potential effects are not our charge at this time, but can be expected from the overall goal of the CRP program. The anticipated transition to an IFQ system could also serve as an incentive for the "excess" licenses to be fished, thus in effect increasing fishing effort. That is, if license recipients perceive that their future allocation of IFQs will depend upon their history of fishing under the license limitation program, they may well wish to fish that license even if they cannot do so economically. Speculation on the future linkage between licenses and eventual IFQs may also affect the cost of acquiring a license for non-recipients. Again, however, this is an effect of the overall CRP program and not of the license limitation program itself.

To further examine the license recipient component, a comparison can be made between the ownership of crab vessels and crab licenses to examine how the distribution of area/species licenses may differ by qualifying period. Tables 2-8 and 2-9 facilitate this comparison. The first of this sequence (Table 2-8) displays the license distribution variance based on Alaska- and non-Alaska-owned vessels, by class, for the 1993 configuration and Qualifying Period 30. Table 2-9 considers crab-license ownership by vessel class (as opposed to crab vessel ownership). It is interesting to note in these tables that the total number of licenses to be issued under Qualifying Period 30 (C131431) to both Alaskans and non-Alaskans almost doubles when considering vessel ownership, and approaches tripling when considering license ownership. The proportional changes between Alaskans and non-Alaskans are not as large. When comparing 1993 to QP 30 (C1314X1 to C131431), under both the vessel ownership and license ownership scenarios, the non-Alaskan owners receive the largest proportion of the distribution (roughly

²This is a conclusion reached by the draft EA/RIR (pp. 119-120).

two-thirds). The QP 30 option (C131431) increases the Alaskan owners' share by 9% when considering vessel owners, and less than 4% when considering crab license owners.

Vessel Class	Area/Species License					
	C1314X1			C131431		
	AK 1993	Non-AK 1993	Total 1993	AK QP 30	Non-AK QP 30	Total QP 30
Unknown						1
CP1	1	7	8	1	17	18
CP1/LP1	0	14	14	0	14	14
CSEN*	0	0	0	1	0	1
DRG	1	0	1	1	0	1
GL1*	0	0	0	2	0	2
GL2*	0	0	0	11	0	11
LP1	1	1	2	1	4	5
MSC	0	0	0	1	1	3 (inc 1 unk)
PCP1	0	5	5	0	7	7
PH1	7	28	35	7	34	41
PH1*	3	3	6	4	3	7
PH2	19	75	94	41	116	157
PH2*	40	36	76	64	47	111
SEN*	0	0	0	1	0	1
SEN/PH2	2	12	3	43	8	55 (inc 4 unk)
SEN/TH4	1	0	1	8	2	11 (inc 1 unk)
TH1	0	0	0	0	1	1
TH1*	0	3	3	1	4	5
TH2	0	0	0	2	16	18
TH2*	5	12	17	7	32	39
TH3	0	0	0	2	4	6
TH3*	1	4	5	9	11	20
TP1	0	0	0	0	2	2
TP2	0	1	1	1	0	1
TP3	0	0	0	0	2	2
TP3*	0	1	1	0	2	2
TOTAL	81	191	272	208	327	542 (535 without Unknown)

Vessel Class	Area/Species License					
	C1314X1			C131431		
	AK 1993	Non-AK 1993	Total 1993	AK QP 30	Non-AK QP 30	Total QP 30
Total Percent	29.8%	70.2%	100%	38.9%	61.1%	100% (not incl. Unknown)

Vessel Class	Area/Species Licenses					
	C1314X1			C131431		
	AK 1993	Non-AK 1993	Total 1993	AK QP 30	Non-AK QP 30	Total QP 30
Unknown						1
CP1	2	14	16	5	58	63
CP1/LP1	0	26	26	0	53	53
CSEN*	0	0	0	1	0	1
DRG	2	0	2	5	0	5
GL1*	0	0	0	2	0	2
GL2*	0	0	0	11	0	11
LP1	2	2	4	3	13	16
MSC	0	0	0	1	1	3 (inc 1 unk)
PCP1	0	9	9	25	0	25
PH1	14	53	67	25	119	144
PH1*	6	6	12	14	12	26
PH2	39	152	191	104	399	503
PH2*	75	74	149	196	162	358
SEN*	0	0	0	1	0	1
SEN/PH2	2	1	3	47	8	59 (inc 4 unk)
SEN/TH4	1	0	1	8	3	12 (inc 1 unk)
TH1	0	0	0	0	1	1
TH1*	0	6	6	0	17	17
TH2	0	0	0	2	16	18
TH2*	11	22	33	24	83	107
TH3	0	0	0	2	4	6

Vessel Class	Area/Species Licenses					
	C1314X1			C131431		
	AK 1993	Non-AK 1993	Total 1993	AK QP 30	Non-AK QP 30	Total QP 30
TH3*	2	7	9	13	21	34
TP1	0	0	0	0	9	9
TP2	0	1	1	1	0	1
TP3	0	0	0	0	2	2
TP3*	0	2	2	0	9	9
TOTAL	156	375	531	490	990	1487 (1480 without Unknown)
Total Percent	29.4%	70.65%	100%	33.1%	66.9%	100% (not incl. Unknown)

2.4 LICENSE DESIGNATIONS

License designations are assumed to be important primarily in terms of transferability. The more generally transferable licenses are (in terms of area, species, vessel size, catcher versus catcher/processor), the more likely it is for some sectors to preempt others, whether due to economic efficiency or other factors. The specific information provided to IAI for this document assumes license designations by vessel length to catcher vessels and catcher/processor vessels as separate classes. For crab, these characteristics are presented in Table 2-10 for those vessels that would qualify for licenses in Qualifying Period 30. The pool of licenses allocated to the category as a whole should be adequate to provide for transfers to take place. The exceptions may be catcher vessels smaller than 60 feet (one of the threshold values) that crab, and the one CP1 vessel that is under 125 feet long. These catcher vessels tend to be 58 feet long, work a number of fisheries with a variety of gears, and may have a fairly restricted pool of licenses open to them in terms of transfer. There are, of course, a number of area/species/vessel designation/vessel length license classes which are quite small, but this reflects past catch history, or rather the lack of it. This will prevent vessels from experimenting with fishing in these areas in the future and thus potentially limit flexibility to adapt to changing conditions, but a detailed examination of this issue is beyond the scope of this document. For the most part this is a limit placed on speculative future activity, and not the current operations of fishing vessels.

Information in Table 2-10 is based on data files provided by the NPFMC for 1992. 1992 is used as base year since it was the only year for which information was available at the time the *Sector Description* report was prepared (IAI 1994).

Table 2-10
Total Vessels by Vessel Class in the Crab Fisheries, Qualifying Period 30
"New" NPFMC definitions Arranged in Possible "License Transfer Classes"

Code	#	Length Code	Comments (Each box pertains to vessel-size classes among which licenses/endorsements will be transferrable)
TP1	2	C	LP1 size A vessels likely to have the most restricted pool of transferable licenses. Other classes would appear to be viable in terms of transfer possibilities, at least in regard to license designations.
TP2	1	C	
TP3	2	B,C	
TP3*	2	B,C	
CP1	18	C	
PCP1	7	B,C	
LP1	5	A,B,C	
CP1/LP1	14	C	
LH1	0	C,B, some A	All should have access to a viable pool of transferable licenses in terms of license designations.
DRG	1	A,B	
MSC	3	A,B	
TH3	6	A, some B	All should have access to a viable pool of transferable licenses in terms of license designations.
TH3*	20	A, some B	
LH2	0	A	
SEN/TH4	11	A	
SEN/PH2	55	A	
SEN*	1	A	
CSEN*	1	A	
GL1*	2	A	
GL2*	11	A	
TH2	18	B	All should have access to a viable pool of transferable licenses in terms of license designations.
TH2*	39	B	
PH2	157	B, some A	
PH2*	111	B, some A	

Code	#	Length Code	Comments (Each box pertains to vessel-size classes among which licenses/endorsements will be transferrable)
TH1	1	C	All should have access to a viable pool of transferable licenses in terms of license designations.
PH1	41	C	
PH1*	7	C	
536		Total	
NOTES:			
For the "New" vessel classes, ANY vessel over 58 feet long which used trawl gear is classified as a trawler (some classes are "pure" trawlers, others use additional gear). Vessels 58 feet long or less are classified as SEN/TH4. For the "Old" vessel classes, vessels were classified based on their "predominant" gear use so that vessels classed as trawlers by the "New" definitions may have been classed as longline, pot, or miscellaneous vessels.			
Length codes: A < 60 feet, B = 60 to 125 feet, C > 125 feet. Where vessel length is either not part of the vessel class definition or is a mixed class, multiple length codes are indicated. These reflect either the hybrid-size definition of the class or the actual size composition of the class. It is assumed that licenses and endorsements will only be transferrable among catcher vessels in the same size class and among catcher/processor vessels within the same size class. For those "mixed-size" vessel classes, such transfers would only be allowed among the subset of vessels which falls within the appropriate size class. Simply from the grouping of transfer classes in this table, it appears that the "New" vessel class scheme is a better representation (albeit more complicated) than the old one. There are still problems with vessels around 58 feet long and trawlers around 90 feet long, which straddle the three main vessel length categories considered in the Council's options. There is some intermixture of "A" and "B" lengths at 58 feet, due to vessel class definitions.			

2.5 QUALIFYING PERIOD

The impact assessment with which IAI has been are charged is quite limited. For crab the two qualifying periods are 1993 (as a measure of current activity) and a more complicated scheme tailored to when crab fisheries were historically open as well as a period of more recent participation in crab fisheries. The only direct comparisons we can make in these cases is related to the differences of these two qualifying periods, and it is these effects which are of central interest. Tables 2-2 and 2-3 serve as the basis for this discussion. The key comparisons are between the "X1" and "31" variants of similar configurations; that is, the paired columns under the label "Configurations."

The comparison of using 1993 as compared to a longer qualifying period is quite simple. A larger number of vessels qualify, with a larger number of area/species licenses/endorsements, if the qualifying period is longer and includes historic fisheries not open at present. We cannot make any statements about the relative effects of qualifying periods other than "30" since we were not given projected license distributional information for those options and have no good source of information to distinguish among them in terms of effects. Logically, options "10" and "20" would include more vessels and result in more licenses than option "30." Option "50" leaves out historical catch data on king crab and hence would grant fewer king crab licenses and distribute them very differently than would option "30." However, for tanner crab, option "50" would be more inclusive and grant more licenses. Sufficient information was not provided to

facilitate an assessment of the relative differences between options "30" and "40." The basis for any such comparison would rely on information for vessels which have catch histories qualifying for one period but not the other.

2.6 LANDING REQUIREMENTS FOR GENERAL LICENSE QUALIFICATION

All specific data given to IAI used one landing for this requirement. All other options are more stringent and would logically result in fewer license/endorsement allocations. The EA/RIR concludes, however, that the results are not significantly different. Hence the social impacts would also be negligible.

2.7 COMPONENTS AND ALTERNATIVE ELEMENTS AFFECTING THE OWNERSHIP, USE, AND TRANSFER OF LICENSES

License limitation options being considered by the NPFMC include a number of components and alternative elements which affect license ownership, use, and transferability. There is little existing information for the analysis of these issues; however, comments regarding individual elements have been offered when possible. Given the lack of supporting data, broad discussion would be more speculation than assessment, and thus has been avoided.

2.7.1 Who May Purchase Licenses

This requirement is essentially a percentage of U.S. ownership requirement. Given the lack of reliable information about the ownership characteristics of each of the sectors, there is little that we can add to this discussion. Further, we lack systematic and complete information on the ownership linkages between sectors.

2.7.2 Vessel/License Linkages

The data provided to IAI for specific configurations concerns only the initial allocation of licenses. No data in regard to vessel/license linkage were received, although the general assumption of Council staff (and Council consideration) seems to be that the two will be severable. Clearly this severability could have future social impacts. Vessels may lose value in relation to licenses if the two are severable and licenses, rather than vessels, are the limiting factor to entry into the fishery. Depending on the anticipated mechanism for transition to an IFQ system this effect could be mitigated or exacerbated. Linking catch history to the license will foster devaluation of vessels, while linkage to a vessel would hinder this effect.

Linkage would also have a more stabilizing, perhaps "rigidifying", effect upon current industry sector composition and the relative balance among the sectors. If the vessel/license linkage were severable, free transfer within size classes for both catchers and catcher/processors could result in the expansion of one type of operation and the reduction of another type. In the absence of

specific cases to examine, it is not possible to draw specific conclusions regarding this concern. In addition, it should be emphasized that if there is a discontinuation of inshore/offshore, the fisheries will be far different than they appear today, and thus any social impact analysis being considered based on the current industry structure (in so far as it is markedly structured by inshore/offshore) may prove inapplicable.

2.7.3 Severability of Species and/or Area Designations

The main effects of these options is addressed in the ER/RIR. Non-severability is extremely restrictive, and it is conservative in preserving the present structure of the fleet. Complete severability potentially allows for a great increase in fleet size. The third option, and the one apparently assumed when providing IAI with data, was that species/area designations are separable but require the owner to also own a general license. This allows operators to fine tune their operations while controlling the total number of general licenses. As with vessel/license linkage, some industry sectors will likely expand while others contract, depending on economic efficiency and other factors. No information exists which would allow us to forecast the likely course of such dynamics. Our information is confined to initial license/endorsement allocations. An assumption provided by our field research conducted for the *Sector Description* document is that the flexibility to acquire and sell species and area endorsements will be especially critical for smaller vessels (those designated code 'A' in Table 2-10), and that the initial allocation is large enough in number and the transaction cost reasonable enough that these operations can continue to exist. Larger vessels are likely to engage in fewer fishing activities and to qualify for an initial allocation of critical licenses/endorsements (at least, that is a hypothesis to test).

2.7.4 Vessel Replacement and Upgrades

No specific information was provided for the analysis of these options. Analysis beyond that provided in the EA/RIR is unlikely to be useful.

2.7.5 License Ownership Caps

License ownership caps will clearly have differential economic and social effects on various industry sectors. Some sectors display a large concentration of ownership. It is known that there are also significant ownership connections between sectors, but little beyond a few specific corporate examples are well documented. Lacking systematic and complete information on the pattern of ownership within and between sectors, no definitive statements can be made.

2.7.6 Buy-back/Retirement Program

Historically, buy-back and retirement programs have been problematic, at best. IAI was not provided information on how such a program might work in the crab fishery; therefore, we cannot provide comments on the social effects of such a program.

2.7.7 Two-Tiered Skipper License Program

The social impacts of this program are not likely to appear as a consequence of license limitation. It can be expected that with or without such a program, current skippers who do not own the boats they operate will continue to do so. However, if the license limitation program is used as a platform for an IFQ program, non-license holders will not be in a position to be allocated IFQs. The same is also true of crew members, permit holders, and all other non-vessel-owner participants. The complexity of the analysis required to address this question is immense and simply defining the information needed for such an analysis would be extremely challenging. It is doubtful that the information could be obtained in a timely and cost-efficient manner, even if there were no problems of confidentiality.

2.7.8 Community Development Quotas

The explicit rationale for a CDQ program is its (beneficial) socioeconomic effect on rural Alaskan communities. In theory, the cost imposed on fishery participants as a whole (the effective reduction of the total allowable catch or TAC) is offset by the benefit to specific community participants in the CDQ program. The use of such a program in a license limitation system for the crab fishery is dependent upon policy decisions to be made by the Council. The net effect of such a program would appear to be to make the reserved TAC essentially into an IFQ management system for the benefit of the CDQ groups. That is, the CDQ would need to somehow be matched to licenses that would permit fishing of the quota, but it is not clear how this would be accomplished, either through the issuance of new licenses, such as Community Development Licenses (see the next section) or through the CDQ "owners" allocating (or renting) their quota to other license holders, which would be more similar to the existing harvest patterns. The latter strategy, however, would differ from the existing situation in that the CDQ recipients may be much more restricted in their universe of choices of who they could "grant" their quota to, based on whatever system of licenses and endorsements is adopted. The Council will, of course, make their decision based on their best available information. With the limited information available at present, we can not offer a scientifically based assessment of the relationship between the CDQ program and proposed license limitations for the crab fishery.

2.7.9 Community Development Licenses

It has not been clearly defined how a community development license scheme would operate within a system meant to restrict the number of licenses. Given the overall purpose of limiting (and/or reducing) entries and fishing effort, the creation of a set of new licenses for a group of people who have not historically or recently participated in the fishery would appear to make little sense on first blush. However, it could be seen as a logical extension of the current CDQ program under at least two sets of circumstances: (1) continuing the spirit of the CDQ effort to develop commercial fishery opportunities in the CDQ communities; and, (2) securing a place for these communities under a license limitation system that was being used as a transition to an IFQ system. Under the first set of circumstances, for example, if at least one of the goals of the CDQ

program is allow the potential to develop local fisheries (rather than simply provide funding to the communities from the commercial fisheries pursued exclusively by others), and that goal remains in place, there must be a mechanism for community residents to enter the fishery in order to develop it. This would require the development of a set of licenses that were not based on either (current or past) fishing vessel characteristics or landing qualifications. (One could, of course, build a system based on the type of non-resident ownership vessels that actually landed CDQs in the past but, based on field observations, those vessels are unlikely to be similar to the type of vessels CDQ community resident owners would capitalize themselves.) In any event, if entry is limited by a license system, there would have to be licenses set aside for such entries were CDQ communities to retain the potential to develop a local fleet.

If license limitation is used as a transitional step to IFQs, however, this raises a number of other CDQ related issues. These would be newly created licenses, and they would have no associated catch history (presumed to be an important component of the IFQ award process). The question arises: would CDQs be associated with the CDLs to obtain a "history" for later IFQ purposes? Present experience shows that communities typically "rent" CDQs to non-community residents; therefore, will that catch history be removed from those who fished the under CDQ auspices and applied elsewhere (to the newly created licenses)? Could communities "rent out" Community Development Licenses, but retain the catch history for the purposes of future IFQs? If retained within the CDQ communities, how such licenses and new operations could be effectively capitalized is unclear, and the market for such licenses is uncertain at best.

Given the many uncertainties in the structure of such a program, the social impacts of the creation of this type of a program are also uncertain. Without further definition that would provide some assurance of a positive result, however, there would appear to be little incentive to implement this sort of program. On the other hand, this would appear to be an area worth further development and analysis in order to avoid unintentionally thwarting the goals of the CDQ program by precluding future CDQ community fisheries development. This may be the area where social impact stakes are the highest under the proposed license limitation system, but we do not have the data to provide concrete analysis, nor does it fit within the sector frame of analysis (of existing sectors) due to the fact that CDLs would comprise a "future" sector.

2.7.10 Other Provisions

None of the other provisions listed under this heading in the Council's options list appear likely to have significant differential sector social effects. The sunset provision they wish to solicit comments on is not specific enough to evaluate except in a very gross way. Anything that increases uncertainty and lack of predictability will likely have negative short-term consequences. (Based on field interviews, this would appear to be true both in terms of individual operations and the fishery as a whole, as people attempt to "hedge their bets" engaging in fishing behaviors they would otherwise not pursue based on their perception of what is a good strategy in relationship to undefined qualification criteria for future regulatory contexts.) The long-term consequences are uncertain at this point, and one of the realities of the fishery in recent years is its uncertainty and lack of predictability. The perception that license limitation (or inshore/offshore, or any other incremental component of the CRP program) may

sunset before the next logical part of the program is put in place would be, at best, unsettling. At worst it would restore all the problems of an overcapitalized open access fishery.

No license transfers would create a very rigid system, modeled on the historical fishery of the qualifying period (which, of course, varies from year to year and changes in direction over time). If progress to a more refined CRP system were rapid, this may be a viable option. Given the past experience of the Council and the necessary variation in fishery activities from year-to-year, it is doubtful whether this is a viable alternative for many industry participants. The qualifying period used may result in an allocation of a suite of licenses/endorsements that is economically viable for them, but this is not assured. Such an alternative would probably protect the biological resource adequately. However, this system will insert some social destabilization or turbulence. The specific social consequences, or the size and intensity of such social consequences, cannot be predicted. The fishery has been a dynamic one, and successful operations are those that have been able to adapt to changing circumstances. Lack of the ability to make transfers would obviously remove one of the key dimensions of the historical dynamic, but the specific social consequences of this in isolation cannot be foreseen, particularly at the sector level.

One key aspect of most if not all of the configurations considered in this document is that the total number of qualified vessels in any vessel class is greater than the number of vessels that fished from that vessel class in 1993. To reiterate: none of the specific configurations significantly restricts fishing effort on the vessel level, and for some sectors many more vessels will be granted licenses/endorsements than fished in any one year. This does not indicate that all such licenses/endorsements would be fished, or that overall effort would increase. Indeed, it can be argued that effort would remain about the same, since under the current open access system anyone who did not fish in 1993 but would receive at least one license/endorsement *could* have fished in 1993, but chose not to. Thus, even with a license such a person would still be *allowed* to fish but could very well decide not to. For many sectors, especially small-size class vessels, there will be an overabundance of licenses/endorsements. This overabundance will allow for the continued entry and exit of specific fishermen and vessels from fisheries, while maintaining some sort of relatively even effort (see Table 2-1 regarding the numbers of vessels fishing each year by vessel class).

There is one significant development that could affect this dynamic, although it is not possible to discuss it precisely. The Council is known to be interested in an eventual transition from a license limitation system to an IFQ system. At present there are no publicly acknowledged rules or mechanisms for how this would take place, but most license recipients will probably assume that holding a license will be required to qualify for eventual IFQs. The details of the pertinent catch history (the license qualifying period, catch history under the license, a combination of both, or some other scheme associated with the vessel used rather than the license itself, or something no one can even conceive of yet) is unknowable at this time. This uncertainty may foster more people to try and fish their licenses than otherwise would, as a speculative venture. This is the major potential nexus for negative social impacts arising from maintaining relatively free access to the fishery through a relatively large supply of licenses/endorsements.

3.0 ANALYSIS OF LICENSE LIMITATION OPTIONS FOR GROUND FISH

The groundfish analysis presented in this chapter uses the same structure as that used for the crab fishery presented in Chapter 2. Whereas the crab discussion focussed on a single option (contrasted with the 1993 base year), the groundfish consideration is more complex. There are three groundfish options or datasets to consider (i.e., two specified options to be contrasted to the 1993 base year). These are described by the following alphanumeric indicators based on the categories defined by the Council (in the December 8, 1994 Council Recommendations memorandum):

- 1B15411
- 1B15811
- 1B15X11

These three configurations are consistent other than for the identifier in the "hundreds" column, which indicates the qualifying period. The key for items for the groundfish configurations is as follows:

- License Class (100000) = A Single Class of License
- Nature of Licenses (B00000) = Licenses for Fisheries by New Configured Areas
- License Recipients (10000) = Current Owners
- License Designations (5000) = Catcher and Catcher Processor and Vessel Length
- Qualifying Periods (400/800/X00) = QP 400 - January 1, 1990 - December 31, 1993; QP 800 - January 1, 1988 - June 27, 1992; QP X00 - 1993
- Landing Requirements (10) = One Landing (General License)
- Landing Requirement (1) = One Landing per Qualifying Period (Endorsement qualification)

Our analysis uses these configuration categories to analyze the vessel classes as described in the introduction and as used in the previous chapter on the crab fishery. Data limitations and translation between the "new" and "old" vessel categories requires that our analysis group various vessel classes. The rationale and implications of these groupings for our analysis is developed in detail under the "Nature of Licenses" section below. As in Chapter 2 we also briefly address a request by Council staff to comment on the "Component and Alternative Elements Affecting the Ownership, Use, and Transfer of Licenses." Our comments regarding these issues, as noted below, will necessarily be brief since we have limited data for such an analysis.

3.1 LICENSE CLASSES

The data provided by the NPFMC for this analysis assumes that there will be a single class of licenses. We do not have access to data regarding historical participation in the groundfish fisheries from which distributions of "A" and "B" licenses could be derived. Consequently, this analysis cannot address any issue other than the single class option.

3.2 NATURE OF LICENSES

The option under consideration designates licenses for particular fisheries (endorsements) by geographical areas. Our analysis can assess the *relative effects of a single license as compared to the two specific area/species options* for which we were provided license/endorsement distributional information. Some preliminary conclusions about other options for some sectors may be possible. The major potential social effects to be evaluated all derive from changes in the fishing opportunities available. Our working assumption is that this change is more likely to be a reduction in fishing opportunities available to those currently fishing as well as to those who may wish to enter the industry in the future. Reductions may result from "no licenses" or from a suite of area/species licenses restriction. These types of reductions in fishing opportunities are the basis for most of our discussion below. This analysis also includes the potential effects of license distribution that reflects a level of potential fishing effort greater than that of the current fishing fleet; and, this analysis is based on assumptions within the industry that a license limitation program is a transitional step to an IFQ program. The general implications of this issue will be examined and then its effects will be discussed on a vessel class basis as appropriate.

This analysis needs to be placed in the context of the potential for the sunset of the current inshore/offshore groundfish allocation program. If this program does indeed sunset prior to the implementation of another means to support the status quo vis-a-vis the various sector quotas, then it is likely that this sunset will have important consequences for the North Pacific groundfishery that will obscure or overwhelm the consequences of a proposed license limitation program. This is especially important for the consideration of the relationships between catcher vessels and catcher/processor vessels. The stabilization of the relationship that directly resulted from the inshore/offshore split is likely to change with the programs' sunset, as the dynamics that prompted the consideration and subsequent implementation of inshore/offshore will reassert themselves (or at least there is nothing to suggest that the trend of change seen prior to inshore/offshore will not be reestablished, as the foundations for those trends would not appear to have changed in the intervening years).

Table 3-1 displays the number of vessels by class which harvested groundfish for each year from 1988 through 1993, as well as for the two qualifying periods that the Council has requested we examine (1990-1993 or QP 400, and 1988-6/27/92 or QP 800). It is difficult to make generalizations that apply to all vessel classes, but the tendency for 1988-1993 is to maintain the total number of vessels fishing for groundfish, with some vessel classes increasing and others decreasing but most remaining stable. Those vessel classes with the largest year-to-year "irregular" changes are multi-gear, smaller size, vessel classes. The TP vessel classes increased sharply in the early part of this period, but have been fairly stable since 1990. The only class to show consistent growth was LP1, but it seems to have peaked in 1992.

For all vessel classes, the minimum number of vessels which would qualify for some sort of groundfish license under either of the qualifying periods being considered is at least equal to, and in some cases is much greater than, the number of vessels from that class which fished in any given year. The TH classes show a relatively small increase, while other catcher vessel classes

show increases in the range of 75 to 250%. The TP and LP vessel classes, which harvest more than 50% of the current groundfish total, increase by 100 to 150%. Both qualifying periods under consideration would qualify a little more than twice as many vessels as actually fished for groundfish in 1993. Qualifying Period 800 would qualify about 108 more vessels than would Qualifying Period 400, but there is no consistent pattern in terms of individual vessel classes.

**Table 3-1
Number of Vessels Which Harvested Groundfish by Vessel Class and Time Period**

Vessel Class	Year or Qualifying Period							Qualifying Period 400	Qualifying Period 800
	1988	1989	1990	1991	1992	1993			
Unknown							30	16	
CP1	1	3	3	2	1	0	4	1	
CP1/LP1	6	5	7	4	12	3	28	24	
CSEN*	6	5	27	23	27	9	58	57	
DRG	9	4	4	8	6	4	12	15	
GL1*	97	76	114	144	165	157	279	271	
GL2*	86	46	87	78	76	66	201	228	
LH1	46	45	46	51	61	45	78	79	
LH2	450	330	385	393	345	365	806	913	
LP1	15	19	25	32	42	40	88	80	
MSC	33	22	29	34	36	41	100	72	
PCP1	2	2	5	7	7	4	16	15	
PH1	1	0	2	1	10	2	12	8	
PH1*	1	0	1	0	3	2	4	3	
PH2	4	1	3	12	20	5	31	26	
PH2*	50	40	52	74	95	69	136	130	
SEN*	125	85	113	145	160	116	289	307	
SEN/PH2	396	305	362	448	486	390	813	877	
SEN/TH4	93	77	97	101	111	125	208	169	
TH1	19	13	12	10	14	14	14	14	
TH1*	3	4	5	4	6	6	7	5	
TH2	19	16	13	12	12	11	16	17	
TH2*	48	52	52	50	50	48	60	59	
TH3	23	21	16	25	21	21	30	32	
TH3*	51	54	53	56	56	57	74	74	
TP1	12	16	24	24	24	24	48	55	
TP2	14	16	15	16	16	16	34	38	

Vessel Class	Year or Qualifying Period							Qualifying Period 400	Qualifying Period 800
	1988	1989	1990	1991	1992	1993			
TP3	12	14	17	19	22	20		45	44
TP3*	11	15	16	19	19	16		40	40
TOTAL	1633	1286	1585	1792	1903	1676		3561	3669

Overall participation for each vessel class will not be limited, at least in terms of individual vessels which would qualify. Thus, at one level of analysis, there are no social impacts due to vessels being excluded from the fishery, since *the net effect will be to include more vessels than are currently fishing*. The situation is more complex when examined from other perspectives, and sector level analysis does not address impacts on individual operations or even specific communities or regions. Our analysis here is focussed on impacts resulting from a consistent or apparent bias (positive or negative) as seen in distributional changes of fishing opportunities. The only potential high-level effects would result from creating more licenses than current participants in the fishery. The effect of the granting licenses in numbers greater than the current fishery participation would, all other things being equal, theoretically not have a negative effect in terms of effort (i.e., increase fishing effort) since under the current open access system everyone who would receive a license could already be fishing. (With the important distinction, discussed earlier, to be taken into account that there will likely be behaviors brought about by the perception that license limitation is precursor to implementation of an IFQ program, and that behaviors will be directed toward maximizing future IFQ returns rather than simply optimizing operations under a license limitation framework.) Potential restrictions under the specific license limitation configurations analyzed will not result from vessel exclusion but rather from the suite of area/species licenses that each vessel (owner) would be fishing. Thus we must examine the distribution of these area/species endorsements by vessel class.

The basis for our examination of the distributional analysis is the data presented in Tables 3-2 and 3-3. Table 3-2 displays the number of licenses by vessel class for each of the configurations we will discuss. Table 3-3 displays the average number of licenses per vessel by class for each option. The "single license" columns are essentially a count of individual vessels that would qualify in the respective time periods [i.e., 1993 (G1115X11), 1990-1993 (G1115411, QP 400), or 1988-6/27/92 (G1115811, QP 800)]. This is indicated in Table 3-3 by the average of 1 license for each vessel in these classes. Under this "single license" option, *any qualifying vessel would receive a license for all areas and all species*. The last three columns of Table 3-2 displays, for each vessel class, the results of sorting the data for the area/species licenses endorsements for each of the three qualifying time periods. Table 3-3 has the same structure as Table 3-2, but the presents the average number of licenses/endorsements per vessel. This will be discussed in more detail below. These final three columns in each of these tables represents more complex information that needs further interpretation.

For the Areas/Species License/Endorsements columns there are two sorts of possible comparisons. First, the effects of the qualifying period on license numbers is demonstrated by

comparing the numbers in the vessel cells for each QP option. For example, Table 3-3 shows the results of taking into consideration the number of license/endorsements distributed and the number of vessels among which they are divided for each of the three qualifying periods. Second, the effects of the single license option versus the area/species license option is demonstrated by comparing the numbers for each vessel class for the corresponding QP (1993, QP 400, and QP 800) in the single license and the area/species sections of the table. For example, the LP1 vessel class QP 400 single license option (value = 88) is compared with the QP 400 value in the area/species section of the table (value = 955). The numbers in these columns can then be compared with the corresponding numbers in the single license columns to assess the relative effects of the single license versus the area/species license configuration. A single overall license clearly allows for a higher potential level of fishing effort than does an area/species system of licenses.

**Table 3-2
Absolute Number of Groundfish Licenses by Vessel Class Sector and Configuration**

Vessel Class	Configurations					
	Single License (= number of vessels)			Area/Species Licenses/Endorsements		
	G1115X11 1993	G1115411 QP 400	G1115811 QP 800	G1B15X11 1993	G1B15411 QP 400	G1B15811 QP 800
Unknown	0	30	16	0	36	19
CP1	0	4	1	0	5	9
CP1/LP1	3	28	24	33	147	56
CSEN*	9	58	57	12	93	77
DRG	4	12	15	13	48	53
GL1*	157	279	271	213	614	546
GL2*	66	201	228	79	355	348
LH1	45	78	79	98	349	287
LH2	365	806	913	471	1413	1427
LP1	40	88	80	404	955	430
MSC	41	100	72	51	138	101
PCP1	4	16	15	30	123	53
PH1	2	12	8	2	15	8
PH1*	2	4	3	2	5	5
PH2	5	31	26	7	59	46
PH2*	69	136	130	118	341	250
SEN*	116	289	307	156	534	525
SEN/PH2	390	813	877	520	1506	1451
SEN/TH4	125	208	169	372	798	490
TH1	14	14	14	141	236	175
TH1*	6	7	5	50	96	67
TH2	11	16	17	91	215	164
TH2*	48	60	59	395	862	659
TH3	21	30	32	139	333	266
TH3*	57	74	74	335	747	502
TP1	24	48	55	293	758	457
TP2	16	34	38	250	733	872
TP3	20	45	44	360	985	186
TP3*	16	40	40	191	598	231
TOTAL	1676	3561	3669	4826	13097	9760

Table 3-3
Average Number of Groundfish Licenses Per Vessels by Vessel Class Sector and Configuration

Vessel Class	Configurations					
	Single License			Area/Species Licenses		
	G1115X11	G1115411	G1115811	G1B15X11	G1B15411	G1B15811
Unknown	0	1	1	0.0	1.2	1.2
CP	0	1	1	0.0	1.3	9.0
CP1/LP1	1	1	1	11.0	5.3	2.3
CSEN*	1	1	1	1.3	1.6	1.4
DRG	1	1	1	3.3	4.0	3.5
GL1*	1	1	1	1.4	2.2	2.0
GL2*	1	1	1	1.2	1.8	1.5
LH1	1	1	1	2.2	4.5	3.6
LH2	1	1	1	1.3	1.8	1.6
LP1	1	1	1	10.1	10.9	5.4
MSC	1	1	1	1.2	1.4	1.4
PCP1	1	1	1	7.5	7.7	3.5
PH1	1	1	1	1.0	1.3	1.0
PH1*	1	1	1	1.0	1.3	1.7
PH2	1	1	1	1.4	1.9	1.8
PH2*	1	1	1	1.7	2.5	1.9
SEN*	1	1	1	1.3	1.8	1.7
SEN/PH2	1	1	1	1.3	1.9	1.7
SEN/TH4	1	1	1	3.0	3.8	2.9
TH1	1	1	1	10.1	16.9	12.5
TH1*	1	1	1	8.3	13.7	13.4
TH2	1	1	1	8.3	13.4	9.6
TH2*	1	1	1	8.2	14.4	11.2
TH3	1	1	1	6.6	11.1	8.3
TH3*	1	1	1	5.9	10.1	6.8
TP1	1	1	1	12.2	15.8	8.3
TP2	1	1	1	15.6	21.6	22.9
TP3	1	1	1	18.0	21.9	4.2
TP3*	1	1	1	11.9	15.0	5.8
TOTAL AVG.	1	1	1	2.9	3.7	2.7

3.2.1 Grouping Vessel Classes for Analysis: Overview

Our analysis proceeds here with a lumping together of classes. This step facilitates an examination of information gleaned from the detailed character of the "New" vessel class system and the more general character of the "Old" vessel class system. Furthermore, the vessel class data provided for our analysis is in aggregate form which lends itself to a more generalized rather than detailed analysis of the distribution of effects. This grouping is made with full recognition that vessel operations within each class are different. However, the commonalities among some classes may be such that it makes sense to focus on similarities rather than differences. This is especially the case for those vessels which have more marginal involvement in the groundfish fishery. That is, such vessels may have considerable differences in their fishing operations, but their participation in the groundfishery has some noticeable commonalities when considered in relationship to the overall set of fisheries they prosecute (cf. *Sector Description and Preliminary Social Impact Assessment*, IAI 1994).

Two major groupings will be constructed: high volume and low volume harvesters. The high volume harvesters of groundfish are those in the following classes: LP1 (and the related CP1, CP1/LP1, and PCP1 vessel classes) TP vessel classes, and TH vessel classes. (This is derived from Table 1-7 of IAI's *Sector Description and Preliminary Social Impact Assessment*: pg 14.) The second major grouping is composed of the remaining vessel classes that are relatively low volume groundfish harvesters. Importantly, although the volume of groundfish harvested is low, this fishery may have significant importance in the overall fishing operations of these vessels. Table 3-3 is helpful in distinguishing between these two groupings. For the high volume vessels (LP1, TP, and TH), the ratio of licenses distributed to the number of qualified vessels for each of the configurations (i.e., the average for each configuration) to be considered is, for the most part, three or higher -- and in many cases substantially higher. For all other vessel classes this ratio is below two, and by definition it cannot be lower than one (a vessel must be allocated at least one license to be a qualified vessel under any given configuration). The most striking exception in the SEN/TH4 (averages 3.0, 3.8, 2.9) and LH1 vessel classes (averages 2.2, 4.5, 3.6), which will thus be discussed separately. The other vessel classes (SEN*, SEN/PH2, PH1, PH1*, PH2, PH2*, LH other than LH1, GL, MSC) will thus be discussed together, with comments on exceptions or variations made as necessary.

3.2.2 Grouping Vessel Classes for Analysis: Low and High Volume Harvesters

Low Volume Harvesters of Groundfish

We will first address the SEN*, SEN/PH2, PH1, PH1*, PH2, PH2*, LH (other than LH1), GL, and MSC vessel grouping. These are either fairly large vessels which do not use longline or trawl gear to a large extent (PH1, PH1*, PH2, PH2*) or smaller vessels which use selected groundfish fisheries as "fill-in" opportunities when their main fisheries are not open. As noted above, vessels in these classes would be allocated, on the average, less than two groundfish area/species license/endorsements each. What this actually means, since this is not a fractional license system, is that all qualified vessels in such classes will receive at least one area/species license, and that some will receive two or more. The number of such vessels receiving more

than two licenses would be expected to be small, because of the effect it would otherwise have on the average for the class as a whole. This reinforces the idea that groundfish for these vessels are not an integral part of their regular operation. In interviews with smaller vessel operators, it was commonly remarked that this group fished for groundfish in local or state waters (protected waters), thus a Federal license limitation program would not, for the most part, affect them. That is, the lack of Federal groundfish licenses would not change their operations a great deal or deny them future opportunities that they had been anticipating. Some opportunities, however, would no longer be open. It may be difficult for smaller vessel operators to capitalize the purchase of a license should they desire to do so (although past experience with license limitations support this generalization it remains to be seen, of course, what value licenses will obtain in this particular case). For the larger vessels who would not receive groundfish licenses but may later desire to enter that fishery there should be enough licenses available for purchase to allow them to do so, and capitalization should be easier for them.

The SEN/TH4 vessel class should be discussed separately, as this is a group of smaller vessels for which groundfish is probably a vital part of their operations. In the "Old" vessel system these vessels were in a number of different categories (LH3, MSC, TH4) and were discussed in the *Sector Description* as smaller, multi-gear vessels. The prototype would be a limit seiner based in Kodiak, King Cove or Sand Point, trawling for Pacific cod and perhaps for pollock, and perhaps doing some longlining as well. They are also involved in rockfish and salmon fisheries, halibut, and other fisheries of opportunity. Because of their size and ties to local shore processors, they tend to fish in nearby waters and thus would receive mostly local area license/endorsements. Of the 125 vessels that fished in 1993, 65 would receive Central Gulf Pacific cod licenses and 59 Western Gulf Pacific cod licenses (153 Pacific cod licenses in all), 30 Western Gulf pollock licenses (63 in all), and various other licenses. For each of the other qualifying periods considered, more SEN/TH4 vessels would qualify for licenses than fished in 1993, and on the average would receive just as many licenses. The current pattern could thus be fairly easily maintained under either of these options, with a probable "excess" capacity. All other things being equal, this would not be expected to create any additional social impacts, other than those already associated with the current open access fishery.

High Volume Groundfish Harvesters

An examination of Table 3-1 (above) for the three high volume classes of groundfish harvesters (LP1 and related classes, TP, and TH) indicates that all configurations considered would qualify at least as many vessels for licenses as had historically fished in any single year. In most cases, especially for the catcher/processor classes, the numbers of qualified vessels would be considerably higher than the yearly historical average. Differences among the configurations in the distribution of licenses is related more to the specific qualification period used, and is discussed below.

LP1 and Related Classes

Table 3-4 makes the differences among the configurations in the distributions of licenses clear for the LP1 sector. Under a single area/species option, vessels would receive a general license that, in effect, allows entry into all the differentiated cells in the table. This would be 40 vessels for the baseline Qualifying Period (QP) of 1993, 88 vessels for QP 400 (1990-93), and 80 vessels for QP 800 (1988-6/27/92). Allocation of licenses on an area/species basis would "reduce" fishing opportunities as compared to the single-license concept. The historical trend has been for the number of LP1 vessels to increase each year from 1988 to 1992, but may have stabilized at about 40 fishing each year since then (see Table 3-1, above).

Table 3-4				
Distribution of Groundfish Area/Species Licenses/Endorsements by Configuration, LP1				
Area	Species	Number of Licenses/Endorsements by Qualifying Period		
		G1B15X11(QP 1993)	G1B15411(QP 400)	G1B15811(QP 800)
Aleutian Islands (AI)	AMCK	10	21	6
	GTRB	26	45	18
	OFLT	6	17	5
	PCOD	23	55	25
	PLCK	9	24	9
	ROCK	26	51	21
	RSOL	6	13	4
	SFLT	0	0	1
	YSOL	0	1	0
Bering Sea (BS)	AMCK	5	9	3
	GTRB	33	71	32
	OFLT	24	57	21
	PCOD	34	76	35
	PLCK	28	59	25
	ROCK	33	66	29
	RSOL	14	36	14
	SFLT	0	0	2
	SQID	0	3	1
	YSOL	7	22	4
Central Gulf of Alaska (CG)	DFLT	7	18	8
	FSOL	2	4	0
	PCOD	18	47	26
	PLCK	3	16	8
	ROCK	25	54	29
	SFLT	1	8	5

Area	Species	Number of Licenses/Endorsements by Qualifying Period		
		G1B15X11(QP 1993)	G1B15411(QP 400)	G1B15811(QP 800)
Eastern Gulf of Alaska (EG)	DFLT	0	1	2
	PCOD	1	5	6
	ROCK	2	12	13
	SFLT	0	1	0
Western Gulf of Alaska (WG)	AMCK	0	1	1
	DFLT	14	29	12
	FSOL	1	4	2
	PCOD	17	46	23
	PLCK	8	17	5
	ROCK	18	46	23
	SFLT	3	10	5
Unknown (UN)	DFLT	0	2	2
	PCOD	0	7	4
	PLCK	0	1	1
TOTAL Licenses		394	934	424
# Qualifying Vessels		40	88	80

For two of the options, G1B15X11 and G1B15411, the number of area/species licenses/endorsements that would be distributed would appear to be distributed such that the number of vessels qualifying for such license (40 and 88 respectively) could remain in the fishery. Based on 1993 catch history about 10 such licenses/endorsements would be distributed to the average vessel, whereas for QP 400 the number is closer to 11. We have no information of good quality on the actual range of the number of licenses/endorsements received; however, based on the information available, it can be inferred that fishing effort under QP 400 would be potentially twice as much as for the 1993 base period. Option G1B15811, with QP 800 (1988-6/27/92) differs in that roughly as many licenses/endorsements vessels qualify as for QP 400 (80 compared to 88) but the number of area/species licenses/endorsements that would be distributed is much lower than for QP 400 (430 compared to 955). This is on the average only about five permits per vessel, which would represent quite a different sort of operation. The overall sector distribution of licenses/endorsements would be very similar to that for G1B15X11, the 1993 base period, and it would be logical to conclude that this number of area/species licenses/endorsements could support about 40 vessels, rather than the 80 among which they would be distributed. These effects are more a function of the QP used than the nature of the licenses/endorsements, however. In regard to the nature of licenses, all three QP considered would apparently support an LP1 sector at least the size of the present one. The effects upon the *members* of the sector could of course be quite different, but we lack more specific information necessary to make any assessment in that regard. That, no doubt, is one reason the Council directed us to look at sector effects.

The PCP1 vessel class displays essentially the same tendencies and have operations similar to those vessels in the LP1 class; however, noticeable differences between these classes include: PCP1 vessels use pot gear, there are fewer of them, and they may not be as economically robust a sector as LP1. PCP1 vessels were not differentiated in the "Old" vessel class system, and hence were not targeted (or encountered) during our field research. Such vessels concentrate on Pacific cod, although they also catch a variety of other species. Operating in the Central and Western Gulf of Alaska, Aleutian Islands, and Bering Sea, 1993 fishing activity would result in licenses adequate for two or three PCP1 operations: one over 125 feet and perhaps two of intermediate length. License transfers would have to be mostly with vessels outside of the vessel class. Both multi-year qualifying periods would qualify two to four times as many vessels as ever fished in any one year. As for the LP1 vessel class, QP 400 would distribute about the same number of licenses per qualified vessel (about 8) as would the 1993 base period, while QP 800 distributes only about half as many (about 4 per vessel). Again, only the aggregated distribution is known, but in neither case would PCP1 fishing effort be restricted by the number of licenses distributed.

CP1 and CP1/LP1 vessels which fish for groundfish display a similar dynamic. Some crab processors have diversified into groundfish as some crab stocks have declined. This is evidenced by the recent low numbers of CP1 operations and the relatively low numbers of CP1/LP1 vessels operating with the large number of vessels in this class which would receive licenses under qualifying period 800 and especially 400. Compared to the recent fishing activity of these vessels, there would be an excess of licenses and no restrictive effects, assuming the free transfer of licenses.

The Trawler Processor Class

The Trawler Processor (TP) class contains four types of vessels:

- TP1 = Processed Surimi and has the ability to do filets and H&G between 1988-1993.
- TP2 = Processed filets and has the ability to do H&G between 1988-1993.
- TP3 = Processed H&G and used trawl gear only between 1988-1993.
- TP3* = Processed H&G, used trawl plus longline and/or pot gear between 1988-1993.

Table 3-5 below is an excerpt from Table 3-1 which indicates the numbers of vessels participating by category for each of the qualifying periods as well yearly from 1988 through 1993. As noted previously, in aggregate the numbers of vessels in the TP class indicates an upward trend that dips in 1993 resulting from decreased participation of vessels in the TP3 and TP3* classes.

Table 3-5 Vessels Which Harvested Groundfish by Class and Time Period								
Vessel Class	Year or Qualifying Period							
	1988	1989	1990	1991	1992	1993	Qualifying Period 400	Qualifying Period 800
TP1	12	16	24	24	24	24	48	55
TP2	14	16	15	16	16	16	34	38
TP3	12	14	17	19	22	20	45	44
TP3*	11	15	16	19	19	16	40	40
TOTAL	49	61	72	78	81	76	167	177

For the TP class of vessels, we will examine the potential effects on fishing opportunities of the options under consideration for the "Nature of License" category, specifically the "general/single license" and the area/species ("A&S" in the tables) options. As with the analysis presented above, several tables (Tables 3-6 through 3-8) form the basis for this discussion. The "general/single license" allows vessels to be placed in all of the cells in the tables. For each of the TP classes for each qualifying period, this information is summarized in the Table 3-6, below.

Table 3-6 Nature of Licenses for TP Vessels General & Areas/Species License Options by Qualifying Period						
Vessel Class	QP 1993		QP 400		QP 800	
	General	A&S	General	A&S	General	A&S
TP1	24	12.1	48	15.4	55	8.1
TP2	16	15.1	34	20.9	38	22.3
TP3	20	17.4	45	21.2	44	4.1
TP3*	16	11.7	40	14.6	40	5.8

The A&S(Area/Species) Columns is a ratio of licenses to vessels or the average license/endorsements per vessel

Several points arise concerning the aggregate fishing opportunities for each category of the TP class for the general and area/species options. The general license option for the 1993 QP results in about the same numbers of vessels that have fished since 1988, although all categories show lower numbers for the 1988 year than for the 1993 QP. For QP 400, the numbers are roughly

double that for vessels in each category of the TP class in any one of the qualifying years. Similarly, comparing the QP 800 and QP 400 options indicates that the numbers of vessels is higher for the TP1 and TP2 categories, slightly less for the TP3 category, and the same for the TP3* category. The QP 1993 option would therefore have little to no effect on the trend in fishing opportunities within this class, although using the QP 400 and QP 800 qualifying periods would significantly increase the numbers of vessels that could qualify for licenses. Based on this scenario, exact social consequences for this sector are difficult to project. However, the available sector profile data indicate that any increase in the numbers of vessels entering this fishery are likely to result in a type of social and economic impacts. The effects of these are likely to be felt in the relationships between owners and their financial backers, owners and their markets, owners and their employees, and suppliers and owners, among other aspects of the relationships within this sector. What is significant is the potential for disruption of existing patterns if there is a dramatic increase in the number of vessels that could enter this fishery. It is not clear how this would play out in reality, however, given the unknowns of behaviors directed toward strategizing for position in an (unknown) future IFQ environment.

Based on our earlier work, there are some other categories that might affect the intensity and outcome of the socioeconomic impacts within this sector. Any increase in participants is likely to accelerate capital stuffing within the existing fleet as well as perhaps encourage the placement of new vessels into this fishery by operations which have sufficient capital to acquire/refit vessels that may have previously exited this fishery. Any option which increases the number of vessels in this class is likely to have impacts for the overall availability of capital for this entire class. Similarly, there are likely to be attempts by individuals or corporate entities with capital to acquire licenses to further increase their fishing opportunities. It is difficult to predict the exact effect of such consolidation, but it is likely to influence the overall pattern of fishing, number of vessels, and employment opportunities within the fleet.

The effects on aggregate fishing opportunities of the Area/Species (A&S) option suggests a similar, but not identical, scenario. The shaded columns in Table 3-6 indicate the results of dividing the total number of possible licenses for each vessel category (i.e., TP1, 2, 3, and 3*) by the total number of qualifying vessels for each of the three options for Qualifying Periods (1993, QP-400, QP 800) to yield the average number of licenses/endorsements per vessel. Examining the three options for TP1 indicates that QP 1993 yields 12.1 license/endorsements per vessel (291/24), QP 400 results in 15.4 per vessel (739/48), and QP 800 yields 8.1 per vessel (447/55). Coupled with there are clear differences in the average number of licenses per vessel, QP 400 and QP 800 options have 739 and 447 licenses/endorsements for 48 and 55 vessels respectively, *a marked increase in the absolute number of vessels that could be issued licenses compared with the 24 vessels that would qualify for the 1993 comparison year*. This represents a significant potential increase that would have essentially the same social outcome as predicted for the general license option, i.e., increased social and economic uncertainty within this sector. Again, however, it is presumed that the operations that exited the sector did so for good reason (i.e., it was uneconomic to remain), and it is not clear what circumstances would bring those operations back, if any. One possibility, of course, is that other changes in the overall regulatory context, such as inshore/offshore sunsetting, would create a different enough economic environment to make a reentry to the fishery a viable option. (As noted above, however, context changes like this would change the environment upon which this analysis is based to a sufficient degree that

the impacts of license limitation implementation would be minor in comparison to other sources of differentially distributed impacts among the various sectors.)

If QP 1993's 12.1 ratio of licenses to TP1 vessels (in Table 3-6) represents what is viable for this class, then QP 400 represents a viable option. QP 800, however, would result in significantly decreased aggregate fishing opportunities. Examination of the TP3 and TP3* categories yields essentially the same results. The TP2 category shows a different pattern in that both QP 400 and QP 800 result in a higher number of average licenses per vessel than QP 1993. Historically these vessels have apparently pursued a wider range of species in more areas, which is consistent with the operations of H&G and fillet vessels when compared with those that produce surimi in addition to some H&G and fillets. For these types of vessels there will be an average of 15.1 licenses/endorsements for the 16 vessels in the 1993 baseline qualifying period; for QP 400 there would be an average of 20.9 licenses for 34 vessels; and, for QP 800 there would be an average of 22.3 licenses for 38 vessels. Both the QP 400 and QP 800 configurations for the area and species option would thus result in higher numbers of vessels and a higher average number of endorsements per vessel than the QP 1993 base year. An examination of the patterns by species and area in Table 3-7 through 3-10 also suggests a complex pattern of fishing by species and area that is heavily concentrated on pollock, rockfish, and cod fisheries in the Bering Sea/Aleutian Island areas. Increases in numbers of vessels in a sector that is generally characterized by its participants as overcapitalized is likely to result in the same type of impacts suggested for the general license option, were these opportunities to be realized.

Table 3-7
Distribution of Groundfish Area/Species Licenses/Endorsements Among TP1 Vessels by Configuration

Area	Species	G1B15X11 (QP 1993)	% Total	G1B15411 (QP 400)	% Total	G1B15811 (QP 800)	% Total
Aleutian Islands	AMCK	3	0.00%	19	0.00%	10	0.00%
	GTRB	10	3.44%	23	3.11%	8	1.79%
	OFLT	6	2.06%	20	2.71%	6	1.34%
	PCOD	13	4.47%	38	5.14%	19	4.25%
	PLCK	19	6.53%	45	6.09%	27	6.04%
	ROCK	12	4.12%	39	5.28%	20	4.47%
	RSOL	4	1.37%	16	2.17%	8	1.79%
	SABL	0	0.00%	9	1.22%	3	0.67%
	SFLT	0	0.00%	0	0.00%	1	0.22%
	SQID	16	5.50%	16	2.17%	3	0.67%
YSOL	1	0.34%	7	0.95%	2	0.45%	
Bering Sea	AMCK	7	2.41%	25	3.38%	13	2.91%
	GTRB	16	5.50%	46	6.22%	25	5.59%
	OFLT	24	8.25%	48	6.50%	27	6.04%
	PCOD	24	8.25%	48	6.50%	38	8.50%
	PLCK	24	8.25%	48	6.50%	39	8.72%
	ROCK	20	6.87%	41	5.55%	25	5.59%
	RSOL	24	8.25%	48	6.50%	31	6.94%
	SABL	0	0.00%	7	0.95%	4	0.89%
	SFLT	0	0.00%	0	0.00%	12	2.68%
	SQID	18	6.19%	18	2.44%	8	1.79%
YSOL	22	7.56%	46	6.22%	25	5.59%	
Central Gulf	AMCK	0	0.00%	0	0.00%	3	0.67%
	DFLT	2	0.69%	6	0.81%	7	1.57%
	FSOL	2	0.69%	4	0.54%	5	1.12%
	PCOD	2	0.69%	6	0.81%	9	2.01%
	PLCK	1	0.34%	10	1.35%	16	3.58%
	ROCK	2	0.69%	8	1.08%	11	2.46%
	SFLT	0	0.00%	4	0.54%	8	1.79%
Eastern Gulf	DFLT	0	0.00%	0	0.00%	2	0.45%
	FSOL	0	0.00%	0	0.00%	1	0.22%
	PCOD	0	0.00%	0	0.00%	2	0.45%
	PLCK	0	0.00%	0	0.00%	1	0.22%
	ROCK	0	0.00%	0	0.00%	3	0.67%
	SFLT	0	0.00%	0	0.00%	2	0.45%

Area	Species	G1B15X11 (QP 1993)	% Total	G1B15411 (QP 400)	% Total	G1B15811 (QP 800)	% Total
Western Gulf	AMCK	1	0.34%	8	1.08%	2	0.45%
	DFLT	1	0.34%	12	1.62%	2	0.45%
	FSOL	4	1.37%	8	1.08%	2	0.45%
	PCOD	4	1.37%	21	2.84%	6	1.34%
	PLCK	4	1.37%	26	3.52%	12	2.68%
	ROCK	4	1.37%	19	2.57%	6	1.34%
	SFLT	4	1.37%	17	2.30%	3	0.67%
Unknown	DFLT	0	0.00%	0	0.00%	0	0.00%
	PCOD	0	0.00%	1	0.14%	0	0.00%
	PLCK	0	0.00%	1	0.14%	0	0.00%
	SFLT	0	0.00%	0	0.00%	0	0.00%
TOTAL Licenses		291	100.00%	739	100.00%	447	100.00%
# Qualifying Vessels		24		48		55	
Average Licenses Per Vessel		12.1		15.4		8.1	

Area	Species	QP 1993	% of Total	QP 400	% of Total	QP 800	% of Total
Aleutian Islands	AMCK	8	0.00%	23	0.00%	25	0.00%
	GTRB	3	1.24%	16	2.25%	16	1.89%
	OFLT	7	2.89%	22	3.10%	14	1.65%
	PCOD	11	4.55%	30	4.23%	29	3.42%
	PLCK	8	3.31%	25	3.52%	26	3.07%
	ROCK	11	4.55%	28	3.94%	25	2.95%
	RSOL	8	3.31%	21	2.96%	21	2.48%
	SABL	2	0.83%	16	2.25%	19	2.24%
	SFLT	0	0.00%	0	0.00%	10	1.18%
	SQID	1	0.41%	1	0.14%	1	0.12%
	YSOL	0	0.00%	3	0.42%	1	0.12%
Bering Sea	AMCK	7	2.89%	24	3.38%	28	3.31%
	GTRB	10	4.13%	27	3.80%	25	2.95%
	OFLT	16	6.61%	33	4.65%	30	3.54%
	PCOD	16	6.61%	33	4.65%	38	4.49%
	PLCK	16	6.61%	33	4.65%	37	4.37%
	ROCK	13	5.37%	33	4.65%	31	3.66%
	RSOL	16	6.61%	33	4.65%	37	4.37%

Area	Species	QP 1993	% of Total	QP 400	% of Total	QP 800	% of Total
	SABL	2	0.83%	15	2.11%	21	2.48%
	SFLT	0	0.00%	0	0.00%	19	2.24%
	SQID	8	3.31%	8	1.13%	3	0.35%
	YSOL	16	6.61%	33	4.65%	34	4.01%
Central Gulf	AMCK	0	0.00%	2	0.28%	3	0.35%
	DFLT	6	2.48%	21	2.96%	29	3.42%
	FSOL	5	2.07%	14	1.97%	20	2.36%
	PCOD	7	2.89%	23	3.24%	30	3.54%
	PLCK	6	2.48%	23	3.24%	28	3.31%
	ROCK	7	2.89%	20	2.82%	30	3.54%
	SFLT	5	2.07%	18	2.54%	28	3.31%
Eastern Gulf	DFLT	2	0.83%	8	1.13%	7	0.83%
	FSOL	0	0.00%	1	0.14%	4	0.47%
	PCOD	2	0.83%	3	0.42%	12	1.42%
	PLCK	2	0.83%	5	0.70%	11	1.30%
	ROCK	2	0.83%	8	1.13%	17	2.01%
	SFLT	0	0.00%	2	0.28%	14	1.65%
Western Gulf	AMCK	2	0.83%	10	1.41%	16	1.89%
	DFLT	3	1.24%	16	2.25%	20	2.36%
	FSOL	5	2.07%	17	2.39%	17	2.01%
	PCOD	5	2.07%	22	3.10%	26	3.07%
	PLCK	4	1.65%	21	2.96%	24	2.83%
	ROCK	4	1.65%	19	2.68%	24	2.83%
	SFLT	4	1.65%	19	2.68%	19	2.24%
Unknown	DFLT	0	0.00%	1	0.14%	1	0.12%
	PCOD	0	0.00%	1	0.14%	1	0.12%
	PLCK	0	0.00%	1	0.14%	0	0.00%
	SFLT	0	0.00%	1	0.14%	1	0.12%
TOTAL Licenses		242	100.00%	710	100.00%	847	100.00
# Qualifying Vessels		16		34		38	
Average Numbers of Licenses Per Vessel		15.125		20.88		22.29	

**Table 3-9
Distribution of Groundfish Area/Species Licenses/Endorsements Among TP3 Vessels by Configuration**

Area	Species	QP 1993	% of Total	QP 400	% of Total	QP 800	% of Total
Aleutian Islands	AMCK	13	0.00%	29	0.00%	7	0.00%
	GTRB	7	2.02%	18	1.88%	4	2.23%
	OFLT	7	2.02%	22	2.30%	3	1.68%
	PCOD	13	3.75%	29	3.03%	7	3.91%
	PLCK	12	3.46%	28	2.93%	4	2.23%
	ROCK	14	4.03%	30	3.14%	7	3.91%
	RSOL	12	3.46%	27	2.82%	6	3.35%
	SABL	3	0.86%	21	2.20%	5	2.79%
	SFLT	0	0.00%	0	0.00%	3	1.68%
	SQID	3	0.86%	3	0.31%	0	0.00%
	YSOL	1	0.29%	5	0.52%	0	0.00%
Bering Sea	AMCK	6	1.73%	20	2.09%	3	1.68%
	GTRB	12	3.46%	30	3.14%	4	2.23%
	OFLT	20	5.76%	44	4.60%	6	3.35%
	PCOD	20	5.76%	44	4.60%	8	4.47%
	PLCK	20	5.76%	44	4.60%	8	4.47%
	ROCK	16	4.61%	35	3.66%	7	3.91%
	RSOL	20	5.76%	43	4.50%	8	4.47%
	SABL	3	0.86%	24	2.51%	6	3.35%
	SFLT	0	0.00%	0	0.00%	4	2.23%
	SQID	3	0.86%	3	0.31%	1	0.56%
	YSOL	20	5.76%	43	4.50%	6	3.35%
Central Gulf	AMCK	0	0.00%	3	0.31%	1	0.56%
	DFLT	12	3.46%	34	3.56%	5	2.79%
	FSOL	11	3.17%	28	2.93%	4	2.23%
	PCOD	14	4.03%	35	3.66%	5	2.79%
	PLCK	10	2.88%	34	3.56%	5	2.79%
	ROCK	14	4.03%	35	3.66%	6	3.35%
	SFLT	13	3.75%	32	3.35%	5	2.79%
Eastern Gulf	DFLT	0	0.00%	4	0.42%	0	0.00%
	FSOL	0	0.00%	1	0.10%	0	0.00%
	PCOD	0	0.00%	4	0.42%	1	0.56%
	PLCK	0	0.00%	6	0.63%	2	1.12%
	ROCK	0	0.00%	7	0.73%	3	1.68%

Area	Species	QP 1993	% of Total	QP 400	% of Total	QP 800	% of Total
	SFLT	0	0.00%	1	0.10%	0	0.00%
Western Gulf	AMCK	5	1.44%	22	2.30%	3	1.68%
	DFLT	6	1.73%	31	3.24%	6	3.35%
	FSOL	5	1.44%	24	2.51%	5	2.79%
	PCOD	14	4.03%	35	3.66%	8	4.47%
	PLCK	8	2.31%	35	3.66%	6	3.35%
	ROCK	12	3.46%	30	3.14%	7	3.91%
	SFLT	11	3.17%	32	3.35%	7	3.91%
Unknown	DFLT	0	0.00%	2	0.21%	0	0.00%
	PCOD	0	0.00%	4	0.42%	0	0.00%
	PLCK	0	0.00%	3	0.31%	0	0.00%
	SFLT	0	0.00%	1	0.10%	0	0.00%
TOTAL Licenses		347	100.00%	956	100.00%	179	100.00
# Qualifying Vessels		20		45		44	
Average Numbers of Licenses Per Vessel		17.35		21.24		4.07	

Table 3-10
Distribution of Groundfish Area/Species Licenses/Endorsements Among TP3* Vessels by Configuration

Area	Species	QP 1993	% of Total	QP 400	% of Total	QP 800	% of Total
Aleutian Islands	AMCK	5	0.00%	15	0.00%	2	0.00%
	GTRB	6	3.21%	19	3.26%	8	3.49%
	OFLT	4	2.14%	15	2.57%	1	0.44%
	PCOD	10	5.35%	30	5.15%	11	4.80%
	PLCK	6	3.21%	13	2.23%	1	0.44%
	ROCK	11	5.88%	26	4.46%	8	3.49%
	RSOL	4	2.14%	11	1.89%	3	1.31%
	SABL	0	0.00%	9	1.54%	5	2.18%
	SFLT	0	0.00%	0	0.00%	2	0.87%
	SQID	1	0.53%	1	0.17%	0	0.00%
YSOL	1	0.53%	2	0.34%	0	0.00%	
Bering Sea	AMCK	2	1.07%	12	2.06%	3	1.31%
	GTRB	14	7.49%	27	4.63%	13	5.68%
	OFLT	10	5.35%	33	5.66%	12	5.24%
	PCOD	14	7.49%	38	6.52%	16	6.99%
	PLCK	11	5.88%	35	6.00%	13	5.68%
	ROCK	12	6.42%	26	4.46%	11	4.80%
	RSOL	8	4.28%	29	4.97%	12	5.24%
	SABL	0	0.00%	10	1.72%	4	1.75%
	SFLT	0	0.00%	0	0.00%	4	1.75%
	SQID	1	0.53%	1	0.17%	1	0.44%
YSOL	7	3.74%	22	3.77%	4	1.75%	
Central Gulf	AMCK	0	0.00%	1	0.17%	1	0.44%
	DFLT	8	4.28%	16	2.74%	5	2.18%
	FSOL	5	2.67%	9	1.54%	1	0.44%
	PCOD	8	4.28%	21	3.60%	10	4.37%
	PLCK	5	2.67%	15	2.57%	7	3.06%
	ROCK	13	6.95%	25	4.29%	13	5.68%
SFLT	3	1.60%	13	2.23%	5	2.18%	
Eastern Gulf	DFLT	0	0.00%	3	0.51%	3	1.31%
	FSOL	0	0.00%	2	0.34%	1	0.44%
	PCOD	0	0.00%	4	0.69%	3	1.31%
	PLCK	0	0.00%	2	0.34%	1	0.44%
	ROCK	1	0.53%	5	0.86%	8	3.49%
SFLT	0	0.00%	2	0.34%	3	1.31%	
Western Gulf	AMCK	0	0.00%	7	1.20%	2	0.87%

Area	Species	QP 1993	% of Total	QP 400	% of Total	QP 800	% of Total
	DFLT	3	1.60%	13	2.23%	4	1.75%
	FSOL	1	0.53%	9	1.54%	2	0.87%
	PCOD	6	3.21%	23	3.95%	9	3.93%
	PLCK	3	1.60%	18	3.09%	6	2.62%
	ROCK	7	3.74%	19	3.26%	8	3.49%
	SFLT	2	1.07%	17	2.92%	5	2.18%
Unknown	DFLT	0	0.00%	0	0.00%	0	0.00%
	PCOD	0	0.00%	0	0.00%	0	0.00%
	PLCK	0	0.00%	0	0.00%	0	0.00%
	SFLT	0	0.00%	0	0.00%	0	0.00%
TOTAL Licenses		187	100.00%	583	100.00%	229	100.00
# Qualifying Vessels		16		40		40	
Average Numbers of Licenses Per Vessel		11.688		14.58		5.73	

The Trawl Harvester Class

The Trawl Harvester (TH) class of vessel is composed of six vessel categories:

- TH1 = Vessels greater than 125' and used only trawl gear between 1988-1993
- TH2 = Vessels between 90'-125' and used only trawl gear between 1988-1993.
- TH3 = Vessels less than 90' that used only trawl gear between 1988-1993.
- TH1*, TH2*, and TH3* each correspond with their respective non-asterisk categories above, but these vessels used other gear in addition to trawling.

The table below summarizes information about the numbers of TH vessels that fished for groundfish during the 1988-1993 time period by year and the number of vessels that would be qualify under QP 400 and QP 800. This table includes a column labeled "Mean" (average number of vessels for the years indicated) as an illustration of the variation from year to year. The TH1 class has a modest down slope from 1988 to 1991, but it reverses and rises to 14 vessels each in 1992 and 1993. The TH1* class has a relatively small, consistent number of vessels. TH2 and TH2* vessels show a steady down slope from 1988 to 1993. TH3 vessels show the same dip and rise as the TH1 vessel group, although after the 1991 peak they dip again. The TH3* class has a modest rise with only a small dip in 1990.

Table 3-11 TH Vessels That Harvested Groundfish by Class and Time Period									
Vessel Class	Year or Qualifying Period								
	1988	1989	1990	1991	1992	1993	Mean	QP 400	QP 800
TH1	19	13	12	10	14	14	13.7	14	14
TH1*	3	4	5	4	6	6	4.67	7	5
TH2	19	16	13	12	12	11	13.8	16	17
TH2*	48	52	52	50	50	48	50	60	59
TH3	23	21	16	25	21	21	21.2	30	32
TH3*	51	54	53	56	56	57	54.5	74	74
TOTAL	163	160	151	157	159	157	158	201	201

The table below (Table 3-12) facilitates a comparison of the "general" and "area/species" types of licenses. This table presents for each vessel class, by qualifying periods (QP 1993, QP 400, and QP 800) the numbers of vessels that would qualify for a "general" license and the average numbers of licenses/endorsements that might be distributed among vessels for the "area species" licenses (the "A&S" columns are a summary of Tables 3-13, 3-14, and 3-15). The "general" license option qualifies 14 vessels for the TH1 class for each qualifying period which is about equal to the mean number of vessels fishing within the time period 1988-1993. For the TH1* class there are as many or more licenses than vessels fishing in any one year of the time period under consideration. The TH2 class shows 11, 16, and 17 for the 1993, QP 400, and QP 800 options respectively, which qualifies as many or more vessels as fished during the time period under consideration with the exception of 1988. For TH2* vessels, QP 400 and 800 qualify more than fished in any one year. The 1993 "current base" comparison year, consistent with the overall downward trend in this class, would qualify as many as or fewer vessels than fished in the time period under consideration. For the TH3 class, QPs 400 and 800 each qualify more vessels than have fished in any one year; for QP 1993, the number of vessels that would be awarded licenses (21) is close to the average for the preceding six years. For TH3* the overall upward trend is reflected in the numbers for each of the qualifying periods: more vessels would qualify than fished in any single year. When the entire TH class is examined, the overall effect of the general license using either QP 400 or QP 800 is to add more licenses than vessels than fished in any one year.

The area/species license option data as a function of the number of licenses/endorsements per vessel are presented in the "A&S" columns of Table 3-12. The "A&S" column indicates the result of dividing the total number of licenses by the total number of vessels (with the total number of vessels also indicated by the numbers in the "general" column). As can be seen, not only do the absolute numbers of vessels in each class increase in both QP 400 and QP 800 over

the 1993 levels of participation, but so do the average number of licenses/endorsements per vessel.

Table 3-12 Nature of Licenses for TH Vessels General & Areas/Species License Options by Qualifying Period						
Vessel Class	QP 1993		QP 400		QP 800	
	General	A&S	General	A&S	General	A&S
TH1	14	10.07	14	16.79	14	12.5
TH1*	6	8.33	7	13.71	5	13.4
TH2	11	8.27	16	13.25	17	9.59
TH2*	48	8.21	60	14.22	59	11.08
TH3	21	6.62	30	11.07	32	8.28
TH3*	57	5.86	74	10.05	74	6.76

The A&S(Area/Species) Columns is a ratio of licenses to vessels or the average licenses/endorsements per vessel

Tables 3-13, 3-14, and 3-15 present more detailed information by class, area, and species for each of the different TH sectors for each the qualifying periods and for the 1993 base year comparison.

Table 3-13
Distribution of Groundfish Area/Species Licenses/Endorsements by Configuration with QP 1993, THs

Area	Species	G1B15X11					
		TH1	TH1*	TH2	TH2*	TH3	TH3*
Aleutian Islands	AMCK				1		1
	GTRB	5	1		1		2
	OFLT	4	1	1	4	1	2
	PCOD	7	3	1	8	1	3
	PLCK	8	5	1	13	1	2
	ROCK	4			2		4
	RSOL	1			1		2
	SABL						
	SFLT						
	SQID						
YSOL							
Bering Sea	AMCK	5	1	3	13	5	5
	GTRB	8	4	5	23	4	2
	OFLT	14	6	10	41	15	12
	PCOD	14	6	11	43	17	16
	PLCK	14	6	11	42	15	14
	ROCK	10	3	8	38	4	10
	RSOL	10	3	9	33	14	12
	SABL	3		3	5	3	
	SFLT						
	SQID						
YSOL	8	3	8	31	10	10	
Central Gulf	AMCK						
	DFLT				6	3	18
	FSOL				3	2	11
	PCOD	2	1	1	10	8	43
	PLCK	5	3	6	22	6	31
	ROCK				1		12
	SFLT				5	5	27
Eastern Gulf	DFLT						
	FSOL						
	PCOD					1	2
	PLCK						
	ROCK						4
SFLT							

Area	Species	G1B15X11					
		TH1	TH1*	TH2	TH2*	TH3	TH3*
Western Gulf	AMCK	2		1	4		6
	DFLT	1			1	2	7
	FSOL	2	1	3	4	4	12
	PCOD	5	1	4	13	8	20
	PLCK	5	1	3	14	4	18
	ROCK	1			5		10
	SFLT	3	1	2	8	6	17
Unknown	AMCK						
	DFLT						
	PCOD						
	PLCK						
	SFLT						
TOTAL Licenses		141	50	91	394	139	334
# Qualifying Vessels		14	6	11	48	21	57
Average Licenses Per Vessel		10.07	8.33	8.27	8.21	6.62	5.86

Table 3-14
Distribution of Groundfish Area/Species Licenses/Endorsements by Configuration with QP 400, THs

Area	Species	G1B15411					
		TH1	TH1*	TH2	TH2*	TH3	TH3*
Aleutian Islands	AMCK	1		3	9	1	3
	GTRB	5	1	4	2		5
	OFLT	6	1	2	8	2	4
	PCOD	9	3	5	23	3	7
	PLCK	10	5	6	27	3	3
	ROCK	4		4	14	2	8
	RSOL	2			2		3
	SABL				1		1
	SFLT						
	SQID			1		1	
	YSOL	1					1
Bering Sea	AMCK	10	5	9	39	13	10
	GTRB	12	6	12	44	12	14
	OFLT	14	6	15	51	23	39
	PCOD	14	6	16	58	26	51
	PLCK	14	6	16	53	24	42
	ROCK	13	5	10	49	14	33
	RSOL	13	5	14	51	24	40
	SABL	8	3	5	19	7	11
	SFLT						
	SQID		2		3		2
	YSOL	14	5	14	47	22	28
Central Gulf	AMCK						
	DFLT				11	11	35
	FSOL				12	8	38
	PCOD	6	2	7	37	17	67
	PLCK	6	3	6	34	14	52
	ROCK				12	9	51
	SFLT	3	1	2	17	10	44
Eastern Gulf	DFLT			1		1	
	FSOL			1		1	
	PCOD				1	2	2
	PLCK					1	
	ROCK			1		1	7
	SFLT				1	2	

Area	Species	G1B15411					
		TH1	TH1*	TH2	TH2*	TH3	TH3*
Western Gulf	AMCK	6	2	4	14		7
	DFLT	8	4	3	22	8	15
	FSOL	7	3	5	28	8	16
	PCOD	13	6	10	43	18	30
	PLCK	12	5	8	42	12	23
	ROCK	9	4	8	31	5	21
	SFLT	12	5	8	35	13	20
Unknown	AMCK			1		1	
	DFLT	1		2	2	2	3
	PCOD	1	1	5	8	5	5
	PLCK	1	1	5	10	6	4
	SFLT	1		2	2	1	2
TOTAL Licenses		235	96	212	853	332	744
# Qualifying Vessels		14	7	16	60	30	74
Average Licenses Per Vessel		16.79	13.71	13.25	14.22	11.07	10.05

Table 3-15
Distribution of Groundfish Area/Species Licenses/Endorsements by Configuration with QP 800, THs

Area	Species	G1B15811					
		TH1	TH1*	TH2	TH2*	TH3	TH3*
Aleutian Islands	AMCK			1	5	1	2
	GTRB	2		1	2	1	2
	OFLT	2		1	2		
	PCOD	4	2	2	9	1	3
	PLCK	8	2	3	13	1	2
	ROCK	2		1	5	1	5
	RSOL				1		2
	SABL				1	1	2
	SFLT				1	1	2
	SOID				1	1	
	YSOL						
Bering Sea	AMCK	8	3	9	27	8	9
	GTRB	11	4	10	37	11	9
	OFLT	13	5	11	44	13	16
	PCOD	14	5	13	51	21	31
	PLCK	14	5	12	49	18	25
	ROCK	12	4	7	36	10	8
	RSOL	12	4	11	37	15	13
	SABL	4	2	4	12	6	2
	SFLT	7	2	7	9	4	6
	SOID	5	2	2	7	1	1
	YSOL	12	4	8	32	9	13
Central Gulf	AMCK						
	DFLT	1		1	12	14	38
	FSOL	1			13	10	34
	PCOD	7	2	11	38	20	58
	PLCK	4	1	3	24	15	50
	ROCK	1	1		14	14	52
	SFLT	4	1	4	19	15	43
Eastern Gulf	DFLT			1		2	
	FSOL	1		1		1	
	PCOD				1	1	2
	PLCK					1	
	ROCK			1		2	4
	SFLT			1	1	2	

Area	Species	G1B15811					
		TH1	TH1*	TH2	TH2*	TH3	TH3*
Western Gulf	AMCK		1	2	5		
	DFLT	1	2	1	20	6	7
	FSOL	1	2	3	17	4	5
	PCOD	7	3	7	31	13	16
	PLCK	8	4	7	28	9	10
	ROCK	4	2	6	27	5	13
	SFLT	4	4	6	22	8	8
Unknown	AMCK						
	DFLT				1		2
	PCOD	1		2	1		3
	PLCK			2	2		2
	SFLT			2	2		2
TOTAL Licenses		175	67	163	654	265	500
# Qualifying Vessels		14	5	17	59	32	74
Average Licenses Per Vessel		12.50	13.40	9.59	11.08	8.28	6.76

3.3 LICENSE RECIPIENTS

All configurational data IAI was given assumes that only current owners are allocated licenses/endorsements. Logically, however, all other options (including a possible skipper license program) would result in at least the same number of licenses/endorsements within each industry sector, and probably more (in some cases significantly more). That is the conclusion reached by the draft EA/RIR. Information to assess the gains or losses under the different options does not exist in any meaningful form. It is reasonable to hypothesize that those non-vessel owners currently participating in the fishery who wish to continue to participate will try to find a way to do so (given the constant change in industry participants). Given that, the distribution of licenses under the configurations discussed herein would reflect a level of fishing effort greater than the historical average (an "excess" over current number of vessels actively fishing), there could be licenses that are unfished and potentially available. Adding a license requirement may increase the capital investment needed for someone to enter fishing, and may possibly reduce the capital value of vessels. This will depend on transfer rules and whether catch history is linked to the license or the vessel for an eventual transition to IFQs.

However, the assumed eventual transition of a license system to an IFQ system could have large effects upon at least some industry sectors, with concomitant social effects. Given the linkage of catch history with either the license or the vessel, hired skippers and crew could be expected to, in effect, be expelled in some numbers from the industry through consolidation and reduced crew size requirements if the "race for fish" were slowed. These potential effects are not our charge at this time, but can be expected from the overall goal of the CRP program.

The anticipated transition to an IFQ system could also serve as an incentive for the "excess" licenses to be fished, thus in effect increasing fishing effort. That is, if license recipients perceive that their future allocation of IFQs will depend upon their history of fishing under the license limitation program, they may well wish to fish that license even if this is an economic hardship or they cannot expect immediate financial gain. Speculation on the future linkage between licenses and eventual IFQs may also affect the cost of acquiring a license for non-recipients. Again, however, this is an effect of the overall CRP program and not of the license limitation program itself.

To aid this discussion of license recipients, available data regarding the groundfish vessel and license ownership by qualifying period is displayed in the Tables 3-16 through 3-18. As discussed elsewhere (IAI 1994), ownership information is somewhat problematic to interpret for a number of reasons, and cannot be assumed to be consistent with either homeport information or even vessel "effort hub" locations. For this reason, ownership data are presented at a highly aggregated level, showing only that distinction between Alaskan and non-Alaskan ownership. As noted in the tables, few dramatic shifts in overall ownership patterns are seen between the various configurations. Table 3-16 shows some shifts between Alaskan and non-Alaskan vessels in the LH2 class, with non-Alaskan owners moving from 24.9% of the sector under QP 400 to 20.6% under QP 800; for SEN/TH4 this shift is 42.5% to 34%. For other classes, the numbers would indicate smaller shifts, or the small numbers in absolute terms make interpretation difficult. Table 3-18 shows some seemingly marked differences in licenses/endorsements per vessel between Alaskan and non-Alaskan owners between periods for a number of different vessel classes, with reversals in larger numbers between the two qualifying periods seen in the LP1, SEN*, and SEN/TH4 sectors.

**Table 3-16
Ownership of Vessels Qualifying for Groundfish Licenses by Vessel Class and Qualifying Period**

Vessel Class	1993		Qualifying Period 400		Qualifying Period 800	
	Alaska	Non-Alaska	Alaska	Non-Alaska	Alaska	Non-Alaska
Unknown	0	0	20	10	10	6
CP1	0	0	1	3	0	1
CP1/LP1	0	3	0	28	0	24
CSEN*	6	3	49	9	48	9
DRG	3	1	10	2	11	4
GL1*	130	27	216	63	210	61
GL2*	60	6	167	34	193	35
LH1	19	26	33	45	31	48
LH2	299	66	645	161	757	156
LP1	10	30	14	74	11	69
MSC	26	15	51	49	50	22
PCP1	0	4	1	15	0	15
PH1	0	2	2	10	1	7
PH1*	1	1	2	2	2	1
PH2	0	5	5	26	4	22
PH2*	53	16	88	48	85	45
SEN*	79	37	208	81	225	82
SEN/PH2	368	12	722	91	786	91
SEN/TH4	96	29	146	62	126	43
TH1	0	14	0	14	0	14
TH1*	0	6	0	7	0	5
TH2	0	11	0	16	2	15
TH2*	6	42	10	50	10	49
TH3	4	17	9	21	10	22
TH3*	28	29	32	42	31	43
TP1	0	24	0	48	0	55
TP2	1	15	1	33	1	37
TP3	5	15	6	39	7	37
TP3*	5	11	5	35	7	33
Subtotals	1199	467	2443	1118	2618	1051
TOTAL	1666		3561		3669	

**Table 3-17
Ownership of Licenses by Vessel Class by Qualifying Period**

Vessel Class	1993		Qualifying Period 400		Qualifying Period 800	
	Alaska	Non-Alaska	Alaska	Non-Alaska	Alaska	Non-Alaska
Unknown			21	15	11	8
CP1			1	4	0	9
CP1/LP1	0	33	0	147	0	56
CSEN*	7	5	79	14	69	8
DRG	11	2	45	3	43	10
GL1*	177	36	464	150	424	122
GL2*	68	11	292	62	297	51
LH1	28	97	125	124	107	180
LH2	367	104	1090	323	1125	302
LP1	91	313	123	832	90	340
MSC	29	22	69	69	66	45
PCP1	0	30	2	121	0	53
PH1	0	2	2	13	1	7
PH1*	1	1	2	3	3	2
PH2	0	7	7	52	4	42
PH2*	90	28	233	108	179	71
SEN*	112	44	396	138	393	232
SEN/PH2	490	30	1385	121	1353	98
SEN/TH4	273	99	551	247	382	108
TH1	0	141	0	236	0	175
TH1*	0	50	0	96	0	67
TH2	0	91	0	215	3	161
TH2*	56	339	101	761	93	566
TH3	22	117	89	244	69	197
TH3*	144	191	317	430	210	292
TP1	0	293	0	758	0	457
TP2	22	228	25	708	138	734
TP3	94	266	148	837	84	102
TP3*	70	121	125	473	80	151
Subtotal	2152	2701	5692	7304	5224	4646
TOTAL	4853		12996		9870	

Table 3-18
Average Number of Groundfish Licenses Per Vessel by Vessel Class, Configuration, and State of Ownership

Vessel Class	1993		Qualifying Period 400		Qualifying Period 800	
	Alaska	Non-Alaska	Alaska	Non-Alaska	Alaska	Non-Alaska
Unknown	0.0	0.0	1.1	1.5	1.1	1.3
CP	0.0	0.0	1.0	1.3	0.0	9.0
CP1/LP1	0.0	11.0	0.0	5.3	0.0	2.3
CSEN*	1.2	1.7	1.6	1.6	1.4	0.9
DRG	3.7	2.0	4.5	1.5	3.9	2.5
GL1*	1.4	1.3	2.1	2.4	2.0	2.0
GL2*	1.1	1.8	1.7	1.8	1.5	1.5
LH1	1.5	3.7	3.8	2.8	3.5	3.8
LH2	1.2	1.6	1.7	2.0	1.5	1.9
LP1	9.1	10.4	8.8	11.2	8.2	4.9
MSC	1.1	1.5	1.4	1.4	1.3	2.0
PCP1	0.0	7.5	2.0	8.1	0.0	3.5
PH1	0.0	1.0	1.0	1.3	1.0	1.0
PH1*	1.0	1.0	1.0	1.5	1.5	2.0
PH2	0.0	1.4	1.4	2.0	1.0	1.9
PH2*	1.7	1.8	2.6	2.3	2.1	1.6
SEN*	1.4	1.2	1.9	1.7	1.7	2.8
SEN/PH2	1.3	2.5	1.9	1.3	1.7	1.1
SEN/TH4	2.8	3.4	3.8	4.0	3.0	2.5
TH1	0.0	10.1	0.0	16.9	0.0	12.5
TH1*	0.0	8.3	0.0	13.7	0.0	13.4
TH2	0.0	8.3	0.0	13.4	1.5	10.7
TH2*	9.3	8.1	10.1	15.2	9.3	11.6
TH3	5.5	6.9	9.9	11.6	6.9	9.0
TH3*	5.1	6.6	9.9	10.2	6.8	6.8
TP1	0.0	12.2	0.0	15.8	0.0	8.3
TP2	22.0	15.2	25.0	21.5	138.0	19.8
TP3	18.8	17.7	24.7	21.5	12.0	2.8
TP3*	14.0	11.0	25.0	13.5	11.4	4.6
Subtotal Avg.	1.8	5.8	2.3	6.5	2.0	4.4
TOTAL AVG.	2.9		3.7		2.7	

3.4 LICENSE DESIGNATIONS

License designations are assumed to be important (from the perspective of social impacts in the sector frame of reference) primarily in terms of transferability. The more generally transferable licenses are (in terms of area, species, vessel size, catcher versus catcher/processor), the more likely it is for some sectors to preempt others, whether due to economic efficiency or other factors. The specific information provided to IAI for this document assumes license designations by vessel length to catcher vessels and catcher/processor vessels as separate classes, and this serves to limit our discussion. With the available data, we first present Table 3-19, which summarizes "vessel designation" classes. It appears that there would be few limits on the potential availability of licenses on the secondary market, but this will be examined on a sector-by-sector basis, as appropriate, since area/species considerations may create some relatively small license pools.

Table 3-19 Total Vessels by Vessel Class in the Groundfish Fisheries "New" NPFMC definitions Arranged in Possible "License Transfer Classes"					
Code	1993	QP 400	QP 800	Length Code	Comments (pertain of vessel-size classes among which licenses/endorsements will be transferrable)
TP1	24	48	55	C	LP1 size A vessels likely to have the most restricted pool of transferable licenses. Other classes would appear to be viable in terms of transfer possibilities, at least in regard to license designations.
TP2	16	34	38	C	
TP3	20	45	44	B,C	
TP3*	16	40	40	B,C	
CP1		4	1	C	
PCP1	4	16	15	B,C	
LP1	40	88	80	A,B,C	
CP1/LP1	3	28	24	C	
LH1	45	78	79	C,B, some A	All should have access to a viable pool of transferable licenses in terms of license designations.
DRG	4	12	15	A,B	
MSC	41	100	72	A,B	

Code	1993	QP 400	QP 800	Length Code	Comments (pertain of vessel-size classes among which licenses/endorsements will be transferrable)
TH3	21	30	32	A, some B	All should have access to a viable pool of transferable licenses in terms of license designations.
TH3*	57	74	74	A, some B	
LH2	365	806	913	A	
SEN/TH4	125	208	169	A	
SEN/PH2	390	813	877	A	
SEN*	116	289	307	A	
CSEN*	9	58	57	A	
GL1*	157	279	271	A	
GL2*	66	201	228	A	
TH2	11	16	17	B	All should have access to a viable pool of transferable licenses in terms of license designations.
TH2*	48	60	59	B	
PH2	5	31	26	B, some A	
PH2*	69	136	130	B, some A	
TH1	14	14	14	C	All should have access to a viable pool of transferable licenses in terms of license designations.
PH1	1	12	8	C	
PH1*	2	4	3	C	
3648				Total	
NOTES:					
<p>For the "New" vessel classes, ANY vessel over 58 feet long which used trawl gear is classified as a trawler (some classes are "pure" trawlers, others use additional gear). Vessels 58 feet long or less are classified as SEN/TH4. For the "Old" vessel classes, vessels were classified based on their "predominant" gear use so that vessels classed as trawlers by the "New" definitions may have been classed as longline, pot, or miscellaneous vessels.</p> <p>Length codes: A < 60 feet, B = 60 to 125 feet, C >125 feet. Where vessel length is either not part of the vessel class definition or is a mixed class, multiple length codes are indicated. These reflect either the hybrid-size definition of the class or the actual size composition of the class. It is assumed that licenses and endorsements will only be transferrable among catcher vessels in the same size class and among catcher/processor vessels within the same size class. For those "mixed-size" vessel classes, such transfers would only be allowed among the subset of vessels which falls within the appropriate size class. Simply from the grouping of transfer classes in this table, it appears that the "New" vessel class scheme is a better representation (albeit more complicated) than the old one. There are still problems with vessels around 58 feet long and trawlers around 90 feet long, which straddle the three main vessel length categories considered in the Council's options. Some intermixture of "A" and "B" lengths at 58 feet, due to vessel class definitions.</p> <p>Information based on data files provided by the NPFMC for 1992. 1992 used as base year since that was the only year for which information was available at the time the "Sector Description" report was prepared.</p>					

The LP1 vessel class is perhaps the most problematic in terms of license/endorsement designation, but this is more appropriately discussed under Section 3.5 "Qualifying Period." The PCP1 class is also problematic, because of low vessel numbers in two size classes. Transfers with other vessel classes (of similar size) should be possible to provide some flexibility. CP1 and CP1/LP1 vessels are also part of this dynamic. Large (125 feet and over) and intermediate vessels should be part of a large enough pool of licenses to make free transfer possible. Small size catcher/processors are likely to be relatively constrained in terms of license transfer.

3.5 QUALIFYING PERIOD

To conduct the limited impact assessment requested, we have been given information on the license and endorsement distributions by vessel class for three specific configurations for groundfish. For groundfish, the three qualifying periods are 01/01/88 - 06/27/92, 01/01/90 - 12/31/93, and 1993. The last is included as a measure of the status quo or current participation. The only direct comparisons that can be made in these cases is related to the differences of the three qualifying periods, and it is these effects which are of central interest. General tables relating to numbers of vessels in each vessel class which would qualify under each option have been introduced above. More specific tables breaking out area/species distributions by sector are discussed below.

Configuration		Vessel Length		
		A	B	C
G1B15X11	Vessels	3	21	16
	Area&Species	10	185	209
	Endors/Vessel	3.3	8.8	13.1
G1B15411	Vessels	8	47	33
	Area&Species	28	503	424
	Endors/Vessel	3.5	10.7	12.8
G1B15811	Vessels	5	41	34
	Area&Species	10	229	191
	Endors/Vessel	2.0	5.6	5.6

A discussion of the LP1 vessel class illustrates the limitations of the analysis possible. From Tables 3-2, 3-3, and 3-21 it is clear that the different qualifying periods considered all have different implications for LP1 vessels. The 1993 baseline configuration, G1B15X11, results in a

license/endorsement distribution that would apparently allow most of the 40 vessels qualifying to fish to continue operations at the current level -- most receive at least two Pacific cod licenses, one pollock license, at least two rockfish licenses, one GRTB license, one flatfish license, and three other licenses. On average, larger vessels receive more licenses than smaller ones (see Table 3-4). Our interviews suggest that most operators would agree with this conclusion. If fishermen can continue operations at their current level they can compete successfully. The most likely source of any increased LP1 fishing effort over the present level would have to come from license transferred from other sectors (mainly TP1 and TP2). In addition to the license, however, some capital investment in a boat may be necessary. The 800 qualifying period, 1/01/88-6/27/92, would produce very close to the same distribution of licenses in terms of absolute numbers, but would distribute them to twice as many qualifying vessels. Thus on the average, each vessel would receive five rather than ten licenses/endorsements. Smaller vessels would receive only an average of two licenses, but even the largest vessels would receive only an average of five to six licenses. There is no way to know if these would actually be evenly distributed (potentially marginalizing the entire sector), or if there would be a more bimodal distribution (forming a viable sector fleet of again about 30 vessels and a more marginal 50). This "excess" fleet could result in increased LP1 fishing effort if licenses were transferred from other sectors. The 400 qualifying period, 1/01/90-12/31/93, would produce the same average license distribution per qualified vessel as the 1993 baseline would, but again would qualify twice as many vessels (and thus distribute twice as many licenses). It would appear that the 400 qualifying period essentially combines the two groups of qualified vessels created by the other two options. This would create potential excess LP1 fishing relative to the recent past. It is unlikely that this many licenses could be fished profitably by LP1 vessels. In following, those vessels which are not currently fishing would not, all other things being equal, reenter the fishery simply because they receive licenses. All three qualifying periods would distribute enough licenses to support at least the current level of LP1 fishing. No effects from restricting opportunities for fishing are thus expected from any of these options.

Table 3-21
Distribution of Groundfish Area/Species Licenses/Endorsements by Configuration, LP1

Area	Species	Number of Licenses/Endorsements by Qualifying Period		
		G1B15X11	G1B15411	G1B15811
Aleutian Islands	AMCK	10	21	6
	GTRB	26	45	18
	OFLT	6	17	5
	PCOD	23	55	25
	PLCK	9	24	9
	ROCK	26	51	21
	RSOL	6	13	4
	SFLT	0	0	1
	YSOL	0	1	0
Bering Sea	AMCK	5	9	3
	GTRB	33	71	32
	OFLT	24	57	21
	PCOD	34	76	35
	PLCK	28	59	25
	ROCK	33	66	29
	RSOL	14	36	14
	SFLT	0	0	2
	SQID	0	3	1
	YSOL	7	22	4
Central Gulf	DFLT	7	18	8
	FSOL	2	4	0
	PCOD	18	47	26
	PLCK	3	16	8
	ROCK	25	54	29
	SFLT	1	8	5
Eastern Gulf	DFLT	0	1	2
	PCOD	1	5	6
	ROCK	2	12	13
	SFLT	0	1	0
Western Gulf	AMCK	0	1	1
	DFLT	14	29	12
	FSOL	1	4	2
	PCOD	17	46	23
	PLCK	8	17	5
	ROCK	18	46	23
	SFLT	3	10	5

Area	Species	Number of Licenses/Endorsements by Qualifying Period		
		G1B15X11	G1B15411	G1B15811
Unknown	DFLT	0	2	2
	PCOD	0	7	4
	PLCK	0	1	1
TOTAL Licenses		394	934	424
# Qualifying Vessels		40	88	80

The PCP1 class dynamics are nearly the same as for LP1. The tables are not reproduced, since they consist of many cells with low numbers, but the results are that the 1993 "baseline case" would result in three Pacific cod licenses in each of three areas (Aleutian Islands, Bering Sea, and Western Gulf), two Rockfish licenses in each of three areas (Aleutian Islands, Bering Sea, and Central Gulf of Alaska) licenses, two GTRB licenses each in the Aleutian Islands and Bering Sea, and one license in many other different area/species combinations. Four vessels would qualify to receive some of these licenses and the average vessel would receive 7.5 licenses. It would appear that fewer than four would really be economically viable. QP 800 would result in nine Bering Sea Pacific cod licenses, six Aleutian Islands Pacific cod licenses, five Western Gulf Pacific cod licenses, and various smaller numbers of rockfish and pollock area licenses, as well as a variety of single area/species combinations. Fifteen vessels would qualify for licenses, with the average vessel qualifying for 3.5 licenses. The license distribution may allow three to five to operate. QP 400 would distribute more than twice as many licenses to 16 vessels. These licenses would include 13 Bering Sea Pacific cod, 10 Aleutian Islands Pacific cod, eight Western Gulf Pacific cod, four Central Gulf Pacific cod, from five to eight rockfish licenses in each of four areas, and lesser numbers of various other area/species combinations. This distribution would appear likely to be able to support five to 10 vessels. Of course, given the present dynamics of the fishery it is not likely that licenses issued to vessels not currently active in the fishery would be fished (again, with the caveat of fishing activity directed toward IFQ "positioning" being a possibility). Since all alternatives examined would at the least allow the present level of effort to continue, no restrictive negative effects are anticipated.

The dynamics for CP1 are much the same, but the number of vessels qualifying for groundfish licenses are so small as to make any discussion unreliable. The CP1/LP1 vessel class is the more logical one to examine, as the dynamics of the fishery have been such that many "CP1" vessels are tending to diversify into the CP1/LP1 type. Tables 3-2 and 3-3 may be somewhat misleading for this vessel class. For the 1993 baseline qualifying period, each qualifying vessel would receive 11 licenses/endorsements each. This represents the activities of only two vessels, however, with a maximum of two for any area/species license combination. Although the ratio for QP 800 is reduced to 2.3, this represents an overall increase in license availability for Pacific cod (13 for the Bering Sea), but still only two or one for all other area/species combinations. For QP 400, the license/qualifying vessel ratio is 5.3, with an even greater increase in license availability -- 25 Bering Sea Pacific cod, 23 Aleutian Islands Pacific cod, 10 Aleutian Islands rockfish, eight Bering Sea Yellowfin sole, eight Bering Sea pollock, seven Aleutian Islands rocksole, and various less numerous area/species combinations. This distribution would appear likely to be able to support more than the current fishing activity, if the resource could support

that level of effort. However, given the present dynamics of the fishery it is not likely that licenses issued to vessels not currently active in the fishery would be fished. Since all alternatives examined would at the least allow the present level of effort to continue, no restrictive negative effects are anticipated.

3.6 LANDING REQUIREMENTS FOR GENERAL LICENSE QUALIFICATION

All specific data given to IAI used one landing for this requirement. All other options are more stringent and would logically result in fewer license/endorsement allocations. For the most part, the reduction is in the smaller-sized vessel classes. The EA/RIR concluded that much of this reduction was for vessels not actually targeting groundfish. There would be some differential social effects for the landings options, but specific data to assess the differences is not presently available. Since such vessels would still, for the most part, be able to land bycatch as they had in the past, few effects would be expected from this lack of license distribution to these smaller vessels. It would preclude the possibility of small vessels trying to develop a targeted specialty fishery for groundfish in Federal waters; however, as suggested in field interviews, most such fishing could be expected to take place in state waters.

3.7 LANDING REQUIREMENTS FOR ENDORSEMENT QUALIFICATION

Again, all specific data IAI received assumes the least restrictive option for this decision point. All other options would reduce the number of licenses/endorsement allocated. The reduction would be predominately from smaller vessel classes, but is also dependent on whether the option chosen more greatly rewards historical or more recent fishery participation (some options modify the qualification period, in effect). Qualification period effects are discussed elsewhere.

3.8 COMPONENTS AND ALTERNATIVE ELEMENTS AFFECTING THE OWNERSHIP, USE, AND TRANSFER OF LICENSES

There are several components alternative elements which can affect the ownership, use, and transfer of licenses. Comments on several of these components are offered, where possible, in this section.

3.8.1 Who May Purchase Licenses

This requirement is essentially a percentage of U.S. ownership requirement. Given the lack of reliable information about the ownership characteristics of each of the sectors, there is little that we can add to this discussion. Further, we lack systematic and complete information on the ownership linkages between sectors.

3.8.2 Vessel/License Linkages

The data provided to IAI for specific configurations concerns only the initial allocation of licenses/endorsements. No instruction in regard to vessel/license linkage was received, although the general assumption of council staff (and Council consideration) seems to be that the two will be severable. Clearly this severability could have future social impacts. Vessels may lose value in relation to licenses if the two are severable and licenses, rather than vessels, are the limiting factor to entry into the fishery. Depending on the anticipated mechanism for transition to an IFQ system this effect could be mitigated or exacerbated. Linking catch history to the license will foster vessel devaluation, while linkage to a vessel would hinder this effect.

Vessel/license linkages would also have a more stabilizing (perhaps constricting) effect upon current industry sector composition and the relative balance among the sectors. If the vessel/license linkage were severable, free transfer within size classes for both catchers and catcher/processors could result in the expansion of one type of operation and the reduction of another type. In the absence of specific cases to examine it is not possible to make additional statements regarding this issue.

3.8.3 Severability of Species and/or Area Designations

The main effects of these options were clearly stated in the ER/RIR. Non-severability is extremely restrictive, and is quite conservative in preserving the present structure of the fleet. Complete severability allows for a potentially great increase in fleet size. The third option, and the one which council staff seemed to assume when providing IAI with data, was that species/area designations are separable but require the owner to also hold a general license. This allows operators to fine tune their operations and managers to control the total number of general licenses. As with vessel/license linkage, some industry sectors will likely expand while others contract, depending on economic efficiency and other factors. No information exists which would allow us to forecast the likely course of such dynamics. Our information is confined to initial license/endorsement allocations. We assume, based on interviews for the *Sector Description* document, that the flexibility to acquire and sell species and area endorsements will be especially critical for smaller vessels (code "A" in the table), assuming that the initial allocation is large enough in number, and the transaction cost reasonable enough, that these operations can continue to exist. A hypothesis to be tested is that larger vessels are likely to engage in fewer fishing activities and to qualify for an initial allocation of critical licenses/endorsements.

3.8.4 Vessel Replacement and Upgrades

No specific information was provided for the analysis of these options. Analysis beyond that provided in the EA/RIR is unlikely to be useful.

3.8.5 License Ownership Caps

License ownership caps will clearly have differential economic and social effects on various industry sectors. Some sectors, such as trawl catcher/processors, currently display a large concentration of ownership. It is known that there are also significant ownership connections between sectors, but little beyond a few specific corporate examples are well documented. Lacking systematic and complete information on the pattern of ownership within and between sectors, no definitive statements can be made.

For the groundfish configurations under discussion here, there are three different area licenses proposed (GOA, BSAI, and GOA/BSAI) with five subarea endorsements (BS, AI, three GOA areas) and 10 separate fishery endorsements in the BSAI and seven separate fishery endorsements in the Gulf of Alaska. A limit on licenses for an individual with only one vessel may not be significant, whereas a limit on endorsements would almost certainly be significant. Even with a grandfather provision, any current multi-vessel operation will likely be severely restricted by a license ownership cap. For instance, for configuration G1B15411, there were 48 unique TP1 vessels and 34 unique TP2 vessels which operated within the qualifying period. It is not unlikely that at least a significant number of them qualify for at least 17 area/species endorsements. Of the 33 TP2 vessels, it is likely that at least a significant number qualify for at least 16 to 22 area/species endorsements (the average for the vessel class under that configuration). Since it is known that operators in this sector commonly operate more than one vessel clearly any cap proposed will be exceeded. Other sectors could be discussed in a similar way. Unfortunately, precise information on the "suite" of endorsements allocated to a typical vessel in each vessel class is not available, and information on ownership patterns is also very incomplete.

3.8.6 Vessel License Use Caps

This is a very similar issue to that discussed above.

3.8.7 Vessel Designation Limits

This is probably more an equity issue than one of social impact, unless this potentially affects a large number of vessels. We have no information on how many vessels this would potentially affect, or what sectors would be potentially more affected than others. The EA/RIR indicates that allowing an operation the full freedom to conduct any activities for which it meets the qualifying conditions is the least restrictive [of fishing effort, it is assumed]. There is no simple way to evaluate direct and indirect social consequences of such a choice.

3.8.8 Buy-back/Retirement Program

We have no comments on the social effects of a buy-back program. The history of such programs as have existed is problematic at best, and Council staff provided no information on

how such a program might work. Also, it appears that the Council's preferred alternative is no buy-back program.

3.8.9 Two-Tiered Skipper License Program

The social impacts of such a program as this will likely not appear as a consequence of license limitation, since it can be expected that with or without such a program current skippers who do not own the boats they operate will continue to do so (subject to the dynamics of the situation). However, if and when the license limitation program is used as a platform for an IFQ program, non-license holders will not be in a position to be allocated IFQs. The same is also true of crew members, permit holders, and all participants who do not own vessels. The complexity of the analysis required to address this question is immense and simply defining the information needed for such an analysis would be extremely challenging. It is doubtful that the information could be obtained in a timely and cost-efficient manner, even if there were no problems of confidentiality.

3.8.10 Community Development Quotas

IAI is in no position to evaluate the past Council experience with the CDQ program or its possible utility in the groundfish (and crab) fisheries. The explicit rationale for the program, however, is its socioeconomic effect on rural Alaskan communities. To that end, the possible fit between the existing CDQ program and proposed license limitation configurations is briefly developed in Section 2.7.8 of the crab section above. Those same points would apply to the present groundfish discussion and are not recapitulated here.

3.8.11 Community Development Licenses

It is not clear how a community development license scheme would operate within a system meant to restrict the number of licenses; given the overall purpose of limiting (and/or reducing) licenses and fishing effort, the creation of a set of new licenses for a group of people who have not historically participated in the fishery appears contradictory. However, as developed in Section 2.7.9 of the crab discussion above, the creation of some form of CDLs, and linking these to CDQs would appear to be necessary to preserve the intent of the CDQ program (if a program goal is the development of CDQ community-based participation in commercial fisheries). The points developed in Section 2.7.9 apply equally to the present groundfish discussion and are not recapitulated here.

3.8.12 Other Provisions

None of the other provisions listed under this heading in the Council's options list appear likely to have significant sector-differentiated social impacts. The sunset provision they wish to solicit comments on is not specific enough to evaluate except in a very generic fashion. Anything that increases uncertainty and lack of predictability will likely have negative short-term

consequences (as briefly reviewed in Section 2.7.10). The perception that license limitation (or inshore/offshore, or any other incremental component of the CRP program) may sunset before the next logical part of the program is put in place would be at best unsettling. At worst it would restore all the problems of an overcapitalized open access fishery.

No license transfers would create a very rigid system, modeled on the historical fishery of the qualifying period. If progress to a more refined CRP system were rapid this may be a viable option. Given the past experience of the Council and the necessary variation in fishery activities from year-to-year, it is doubtful whether this is a viable alternative for many industry participants. The qualifying period used may result in an allocation of a suite of licenses/endorsements that is economically viable for them, but this is not assured. Such an alternative would probably protect the biological resource adequately.

One key aspect of most if not all of the configurations considered in this document is that the total number of qualified vessels in any vessel class is greater than the number of vessels from that class that fished in 1993. That is, none of the specific configurations significantly restricts fishing effort on the "number of vessels" level, and for some sectors many more vessels will be granted licenses/endorsements than fished in any one year. This does not mean that all such licenses/endorsements would be fished, or that overall effort would increase. Indeed, it can be argued that effort would remain about the same, since under the current open access system anyone who did not fish in 1993 but would receive at least one license/endorsement *could* have fished in 1993, but chose not to. Thus, even with a license such a person would still be *allowed* to fish but could very well decide not to. That is, for many sectors, especially small-size class vessels, there will be an overabundance of licenses/endorsements. This overabundance will allow for the continued entry and exit of specific fishermen and vessels from fisheries, while maintaining some sort of relatively even effort (see Table 3-1 for the numbers of vessels fishing each year by vessel class).

There is one significant development that could affect this dynamic, although it is not possible to discuss it with precision. The Council is known to be interested in an eventual transition from a license limitation system to an IFQ system. At present there are no publicly acknowledged rules or mechanisms for how this would take place, but most license recipients will probably assume that holding a license will be required to qualify for eventual IFQs. The details of the pertinent catch history (the license qualifying period, catch history under the license, a combination of both, or some other scheme associated with the vessel used rather than the license itself, or something no one can even conceive of yet) are unknown at this time. This uncertainty may foster more people to try and fish their licenses than otherwise would, as a speculative venture. *This is the major potential nexus for negative social impacts arising from maintaining relatively free access to the fishery through a relatively large supply of licenses/endorsements.* Whereas earlier IFQ/CRP interim steps, such as the moratorium period, may have served to limit present participation in anticipation of an eventual implementation of an IFQ program, issuing licenses significantly in excess of present effort levels may have the opposite result unless steps are taken to forestall such efforts.

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