Quantitative Estimates of Fishing Capacity, Capacity Utilization, and Fishery Utilization for Alaskan Commercial Fisheries, 2001

October 2002

By

Ronald G. Felthoven,
Terry Hiatt and
Joseph M. Terry

U.S. National Marine Fisheries Service
Alaska Fisheries Science Center

Introduction

The goal of this report is to provide measures of what could be caught by the existing fleet of vessels that operate in federally managed Alaskan fisheries if they were allowed to fish for longer periods of time during the year (under normal operating conditions)[1]. Current regulations directly or indirectly limit the amount of time (and often, when and where) catcher vessels and catcher-processors may fish, which often precludes vessels from operating at their full, productive capacity. Thus, there may be more investment in the fishery than that which maximizes the net benefits to the nation[2]. A first step toward addressing this issue is to compare existing capacity to actual catch. A significant difference between the two may signal the need for implementing measures to diminish or eliminate the incentives for, and presence of, excess capacity.

The process of imputing potential catch, in the presence of regulations, essentially requires one to examine past and present fishing activity to determine the extent to which current effort, and catch, could and/or would increase if existing conditions or regulations changed[3]. The capacity measures computed in this report were constructed using data on catch (in metric tons), participation (in weeks), and vessel characteristics of catcher vessels and catcher-processors that operated in federally managed Alaskan commercial fisheries for 1990 to 2001. The specific data sources include Alaska Department of Fish and Game (ADF&G) fish tickets,

[1] Thus, the capacity estimates reflect what could be caught in all Alaskan commercial fisheries (state and federally managed) by federal fishery participants; the capacity of vessels that participated *only* in state fisheries was not estimated. As is the case in most fisheries, the capacity estimates are in terms of retained catch (not retained *and* discarded catch).

[2] The incentives that often give rise to over investment, and thus, excess capacity, are related to the restricted open-access management used in most Alaskan fisheries and the associated race for fish.

[3] For example, one might want to know how much the existing fleet would catch if all existing total allowable catch (TAC) limits were removed. Or, one might want to find the cost-minimizing or profit-maximizing level of catch associated with the existing fleet. There are several other capacity-related questions of interest, which, unfortunately, are often unanswerable given the existing data.

federal blend data (which includes data from both observer reports and weekly production reports), ADF&G vessel-registration files and federal vessel-registration files.

In addition to the current regulations, there are technological and economic constraints that limit the amount of fish fishermen are willing and able to catch. Generally speaking, technological constraints can be thought of as "physical" limits on the maximum amount of fish that fishermen could catch (based on the gear used, the size and power of the vessel, the health of the stocks, weather, fishing skill, and several other factors). Economic constraints are factors which affect fishermen's decisions over how much effort to exert and which species to catch (and include factors such as fuel, bait and labor costs, opportunity costs of participating in other fisheries, and ex-vessel prices).

Ideally, one could compute capacity measures that reflect the maximum amount of fish that could and would be caught by fishermen, given existing technological and economic constraints, if all regulatory restrictions governing catch were relaxed. Such measures would indicate the realistic "catching power" of the fleet, and could then be compared to actual catch, in order to gauge excess capacity[4]. However, such an endeavor requires a great deal of information – most of which is lacking for federally managed Alaskan fisheries (as well as in most other federally managed fisheries).

One approach that could be undertaken with the existing data is to construct "technical" capacity estimates using data envelopment analysis or stochastic production frontier models. Such analyses essentially focus on the maximum level of catch vessels could obtain if they operated with full (and often, heightened) technical efficiency and unrestricted use of variable

[4] Similarly, one could compare existing capacity to some optimal, desired level of capacity at the current stock conditions or another reference point (such as when stocks are rebuilt to levels corresponding to maximum economic yield or maximum sustainable yield) to obtain a measure of *overcapacity*. However, measurement of

inputs. Typically, however, the maximum technical/physical level of catch exceeds that which would occur when economic factors (such as costs) are accounted for, and thus may overstate the amount that *would* be caught. For this reason, this report does not derive technical capacity estimates. Rather, we attempt to purge the major regulatory constraints that limit fishing effort, while still accounting for the impacts of technological and economic constraints implicit in the data on catch and effort[5].

Put another way, the observed effort and catch histories for the Alaskan fisheries are a result of the regulatory, technical, and economic constraints that have typically existed. The approach used to estimate current fishing capacity in this report attempts to purge the decreases in effort, catch, and participation that have occurred over time due to decreased TACs (regulations that limit catch and effort)[6]. While the capacity estimates still embody many of the spatial restrictions and bycatch constraints, they essentially reflect what would and could be caught by the fleet under normal operating conditions, given 2001 targeting strategies and the existing technical and economic constraints. It is too complex a task to successfully mimic the removal of all existing regulatory constraints that limit catch, given the multitude of interactions and targeting strategies that arise in response to those regulations[7]. Similarly, we do not speculate what could be caught under unobserved, larger stock levels. More detail on the exact procedures used in the process to estimate capacity will be provided later in the report.

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overcapacity requires even more information (and speculation) than the measurement of excess capacity, and is thus not pursued here.

[5] One benefit of this approach is that we do not impute potential technical efficiency increases in the capacity estimates.

[6] In some years, for some species, bycatch caps for one species may limit the catch of another species that is linked in harvesting technologies due to imperfect gear selectivity.

[7] It should be noted that regulations restricting where a species can be caught might make the costs of targeting the species prohibitive. In such cases, the relevant constraints are economic and regulatory, and thus difficult to disentangle. For these reasons, no attempt is made to purge such effects in this study.

There are wide ranges of fishing activities, vessel sizes, targeting strategies, and gear configurations in the various federally managed Alaskan fisheries. Generally speaking, however, groups can be established that are likely to share similar technological, economic, and regulatory (TACs, closures, seasonal delineation) constraints. In an attempt to establish such groups, vessel characteristics, fishery participation, and processing data (for catcher-processors) were examined. As a result, 12 catcher vessel groups and 10 catcher-processor groups were formed (hereafter referred to as "subgroups"). Each of these subgroups is comprised of similarly equipped, similarly sized vessels that engage in a common set of fisheries (and, in the case of catcher-processors, produce a similar set of finished products). Such a grouping allows us to present the capacity estimates on a fleet-by-fleet basis, which more clearly elucidates the sources of fishing capacity.

In addition, by categorizing the vessels into homogeneous subgroups one has a more realistic idea of what vessels in each subgroup could have caught, even for those vessels that have exhibited very little activity. This in part allows one to account for latency in the capacity estimates[8]. That is, by focusing on the range of effort for a set of well-defined, comparable peers, one can reasonably determine the effort levels that the less active vessels were capable of exerting (if economic incentives arose that led them to do so). Although care was taken defining and refining the 22 vessel subgroups designated in this report, it is worth noting the validity of these types of peer comparisons can be compromised by unobserved heterogeneity among vessels in each subgroup. For this reason, the estimator $\hat{C}_j^i$ avoids such comparisons (and is based solely on each vessel's historical participation) and should be interpreted as the more conservative capacity estimator. Alternatively, the estimator $\widetilde{C}_j^i$ does involve comparisons among

vessels within each subgroup, and thus should be interpreted more cautiously[9]. Further details on the estimators $\hat{C}_j^i$ and $\widetilde{C}_j^i$ are given below.

Formulation of Capacity Estimates

There are several ways in which one could impute the potential level of effort and catch of a fishing vessel – each of which could generate different estimates of capacity output. However, with the aim of providing realistic estimates of what could (and would) actually be caught, we base our analysis on each vessel's historical participation and effort in each of the Alaskan commercial fisheries. Specifically, we compare the total number of weeks each vessel fished in 2001 with the most weeks it fished over the 1990-2001 period (where 52 weeks is the greatest number of weeks each vessel could theoretically participate in a given year). If effort (in weeks) exceeded 2001 effort in another year, it is assumed that the existing capacity of the vessel should be based upon that higher level of effort (which would instead be exerted upon the observed 2001 species composition). This process thus involves radially scaling up the observed 2001 catch statistics by the ratio of maximum operating weeks for 1990-2001 to observed operating weeks in 2001. This approach thus assumes constant returns to scale and Leontief input-output separability.

An issue that arises in basing the calculations on total annual effort is that one may generate participation levels in a specific fishery that are above any exhibited in the past. For example, if a vessel is now operating half as many total weeks as in a former year (and targets groundfish and crab), our approach would compute capacity as twice the size of the observed

[8] We make no other attempt to account for latent capacity of inactive vessels in our estimates, however, as we focus only on active participants in 2001.
[9] Note, however, that in most cases the resulting estimates from the two estimators turned out to be quite similar, as illustrated by the tables at the end of this report.

2001 catch levels for groundfish and crab. If, however, groundfish effort had remained relatively stable over time and the drop in annual operating time was solely attributable to diminished crab participation, the implied increase in groundfish effort would be unrealistic.

We alleviate such potential problems by monitoring the total effort of each vessel within 8 generally classified fisheries: groundfish (including pollock, Pacific cod, Atka mackerel, rockfish, sablefish, flatfish, and "other groundfish"), herring, halibut, salmon, crab (including red king crab, golden king crab, and tanner/snow crab[10][*c.opilio* and *c.bairdi*]), scallops, "other shellfish[11]", and "other species[12]." If the implied potential increase in total annual effort implies a number of weeks in any particular fishery that exceeds the most weeks historically fished by that vessel in that fishery, the radial scaling of effort is then limited to take on that vessel's observed maximum for that fishery.

This first estimator will be denoted as $\hat{C}_j^i = \hat{\theta}_j^k Y_j^i$, where $\hat{C}_j^i$ is the capacity of vessel j for species i, $\hat{\theta}_j^k$ is a scaling factor for vessel j in fishery k, and Y_j^i is the observed output of vessel j for species i in 2001. The scaling factor $\hat{\theta}_j^k$ indicates the amount by which observed output could be increased, and is given by: $\hat{\theta}_j^k = \min\left\{\left(\frac{\max.weeks_j}{weeks_j}\right), \left(\frac{\max.weeks_j^k}{weeks_j^k}\right)\right\}$. Here, max. $weeks_j$ is the maximum number of weeks spent fishing by vessel j in any year for 1990-2001, $weeks_j$ is the observed number of weeks spent fishing by vessel j in 2001, $\max.weeks_j^k$ is the maximum number of weeks spent fishing by vessel j in fishery k for 1990-2001, and $weeks_j^k$ is the number of weeks spent fishing by vessel j in fishery k for 2001. Note that θ_j^k is fishery specific, not

[10] Blue king crab was also broken out as a separate category when analyzing production for the 1990-2001 period. However, because the vessels in this analysis caught no blue king crab in 2001, it is not represented in the capacity and capacity utilization estimates.

species specific, and that each k^{th} fishery has a unique group of species *i*, *i*=1,…*I.* For example, the groundfish fishery includes seven species and the crab fishery includes four species (all other fisheries defined in this report correspond to a single species or species "group"[13]).

If one broadens the scope of potential increases in effort to incorporate information from a vessel's peers (i.e., their subgroup) a second, alternative, capacity estimator can be generated. This estimator is formed by increasing each vessel's effort (in weeks) to its greatest historical level (as with the first estimator), subject to the constraint that the resulting implied number of weeks spent in each fishery does not exceed the most weeks in that fishery by *any* vessel in its subgroup for 1990-2001. This alternative formulation recognizes that the maximum historical weeks fished in a fishery by a vessel may not reflect the maximum level possible given the regulatory, technical, and economic constraints that are present. Rather, such a level may be better reflected by the maximum weeks fished in that fishery by another vessel in its subgroup. Thus, this second capacity estimator will generate estimates greater than or equal to the first estimator.

The second capacity estimator will be denoted as $\widetilde{C}_j^i = \widetilde{\theta}_j^k Y_j^i$. The interpretation of the components of $\widetilde{C}_j^i$ is the same as for $\hat{C}_j^i$, except that here, $\widetilde{\theta}_j^k$ is defined as:

$\widetilde{\theta}_j^k = \min\left\{\left(\frac{\max.weeks_j}{weeks_j}\right),\left(\frac{\max.weeks^k}{weeks_j^k}\right)\right\}$. Thus, the ratio of $\frac{\max.weeks_j^k}{weeks_j^k}$ has been replaced with $\frac{\max.weeks^k}{weeks_j^k}$, where max.$weeks^k$ is the maximum number of weeks spent fishing by *any* of the vessels in this subgroup in fishery *k* for 1990-2001. Due to confidentiality requirements, and

[11] This group is made up of clams, shrimp, abalone, and other crab species.
[12] This group is made up of lingcod, eels, and other infrequently caught forage species.
[13] The "salmon" catch (and capacity) reported in this document includes the various species of Pacific salmon.

the sheer number of vessels involved in the fishery, this report will present the values of $\hat{C}^i = \sum_{j=1}^{J} \hat{C}_j^i$, and $\tilde{C}^i = \sum_{j=1}^{J} \tilde{C}_j^i$ for each sub-grouping of catcher vessels and catcher-processors, where *J*= the number of vessels in each subgroup (the specific details of each subgroup are given below).

Formulation of Capacity Utilization Estimates and Fishery Utilization Measures

Typically, capacity utilization is defined as the ratio of observed output to capacity output. Following this convention, we will present two capacity utilization measures for each vessel subgroup, based on the $\hat{C}_j^i$ and $\tilde{C}_j^i$ capacity estimates for each species *i*. The first measure is defined as the ratio of observed catch by the vessel subgroup to capacity catch for the subgroup (where capacity is defined according to $\hat{C}_j^i$); $\hat{C}U^i = (\sum_{j=1}^{J} Y_j^i)/(\sum_{j=1}^{J} \hat{C}_j^i)$. The second measure is defined as the ratio of total observed catch by the vessel subgroup to the second formulation of capacity catch for the subgroup; $\tilde{C}U^i = (\sum_{j=1}^{J} Y_j^i)/(\sum_{j=1}^{J} \tilde{C}_j^i)$. Note that these aggregate subgroup-specific estimates of capacity utilization are in a sense catch-weighted, as vessels with a larger catch share of species *i* have a larger impact on the value of both $\hat{C}U^i$ and $\tilde{C}U^i$. It is worth noting again that these capacity utilization estimates embody the assumption that the 2001 catch composition for each vessel within each of the eight generally defined fisheries remains constant at capacity. Thus, the value of capacity for each species does not reflect what could or would be caught if all effort were exerted upon that particular species. Rather, capacity (and the associated capacity utilization measures) for each species represents an

estimate of what could be caught if all vessels increased their effort (according to the capacity estimators described above) and targeted their observed 2001 catch mix.

Because the species-specific capacity utilization measures are not impacted by vessels that did not catch that particular species in 2001 (as both observed output and capacity output would be zero under our present methodology), they do not provide information on changes in annual participation. Instead, they indicate the intensity of effort, relative to past years, for those that are currently participating. Therefore, "fishery utilization" (FU) measures were constructed, which provide information on overall participation (in weeks), relative to past years, even in the absence of activity in a fishery in 2001.

These measures (FU_{Total}, $FU_{Groundfish}$, FU_{Salmon}, $FU_{Herring}$, $FU_{Halibut}$, $FU_{Scallop}$, FU_{Crab}, $FU_{Shellfish}$, $FU_{OtherSpecies}$) are simply defined as the ratio of weeks each vessel spent in each fishery in 2001 relative to the maximum ever observed for that vessel for 1990-2001 (averages are presented for each vessel subgroup). Note that FU_{Total} is the ratio of total weeks fished during the year in any activity in 2001 to the maximum number of total weeks fished during the year for 1990-2001. All other week-based FU measures reflect participation in individual fisheries (e.g., $FU_{Groundfish}$ is the ratio of the weeks a vessel spent in groundfish fisheries in 2001 to the most weeks it spent from 1990-2001 in groundfish fisheries). In summary, CU measures essentially represent vessel utilization by current fishery participants, while FU measures indicate the existing utilization of the fisheries, relative to past levels.

Capacity and Utilization Estimates

Table 1 presents actual catch and the associated capacity estimates (for both the $\hat{C}_j^i$ and $\widetilde{C}_j^i$ estimators discussed above), by species, for the group of catcher-processors and catcher

vessels that operated in federally managed Alaskan fisheries in 2001. Note that in all tables, the reported catch and capacity estimates are in metric tons. Table 1 also reports the implied excess capacity (the difference between actual catch and catch levels corresponding to full capacity), and the week-based FU estimates. The estimates indicate that current capacity, in terms of total catch of *all species*, exceeds actual catch by nearly 40%. However, species-specific excess-capacity estimates range widely -- from 8% to over 300%. Further breakdowns, into catcher vessel and catcher-processor fleets (and subgroups within each), are provided in the following tables.

Table 2 presents the capacity estimates for the catcher-processor fleet as a whole, and for each subgroup, by species. Table 3 presents the capacity estimates for the catcher vessel fleet as a whole, and for each subgroup, by species. As stated earlier, these estimates are based upon an assumed catch mix equal to that observed in 2001. Thus, for some species, the capacity estimate is given by a "-", which implies that no vessels in that subgroup caught that species in 2001.

Table 4 presents capacity utilization estimates for the catcher-processor fleet as a whole, and for each subgroup, by species. Table 5 presents the same information for the catcher vessel fleet. Just as with the Tables 2 and 3, Tables 4 and 5 also have "-" entries in cases where the specific subgroup did not catch any of that species in 2001. Note that the inverse of the capacity utilization scores (minus one) in Tables 4 and 5 yields an estimate of the percent by which capacity catch exceeds the actual catch observed in 2001.

Tables 6 and 7 present week-based fishery utilization estimates for the catcher-processor and catcher vessel fleets (and their subgroups), respectively. Entries with a "-" imply that no members of that subgroup that fished in 2001 have participated in that specific fishery during 1990-2001. Entries with a zero imply that some vessels have participated in the past, but did not

do so in 2001. The inverse of these fishery utilization scores (minus one) indicates the percent by which the vessels' annual participation in each fishery could increase, to match each vessel's historical maximum for the 1990-2001 period.

Finally, Tables 8 and 9 report the mean annual participation (in weeks) for the catcher-processors and catcher vessels, respectively, for 1990-2001. The tables also show the total number of vessels present in the fisheries discussed in this report in each year (by subgroup and for the catcher-processors and catcher vessels as a whole).

In order to fit the description of each catcher-processor and catcher vessel subgroup in the tables below, abbreviated names were used[14]. The subgroups represented by the abbreviations are as follows:

Catcher-Processors:

ST-CP (surimi trawler catcher-processor); these factory trawlers have the necessary equipment to produce surimi from pollock and other groundfish.

FT-CP (fillet trawler catcher-processor); these trawl vessels have the equipment to produce fillets (from pollock, Pacific cod, and other groundfish), and are not surimi-capable according to past production records.

HT-CP (headed and gutted trawler catcher-processor); these factory trawlers do not process more than incidental amount of fillets. Generally, they are limited to headed and gutted products or kirimi. In general, they do not focus their efforts on pollock, opting instead for flatfish, rockfish, Pacific cod, and Atka mackerel.

P-CP (pot catcher-processor); these vessels have been used primarily in the crab fisheries of the North Pacific, but as of late they have increased their participation in the Pacific cod fisheries. They generally use pot gear, but may also use longline gear. They produce whole or headed and gutted groundfish products.

L-CP (longline catcher-processor); these vessels (also known as freezer longliners) do not trawl or use pot gear, and typically use longline gear to catch mostly Pacific cod. Most of these vessels are limited to headed and gutted products.

Salmon CP, Crab CP, Halibut CP, Other Shellfish CP; these groups are comprised of vessels that do not fit into the other catcher-processor categories above, and spend a large

[14] These subgroups were developed for the environmental impact statements for Alaskan groundfish fisheries.

proportion of their fishery-weeks in salmon, crab, halibut, or "other shellfish" (those other than crab and scallops), respectively.

Other CP; these vessels are those which do not fit into the other catcher-processor categories above, and did not spend a disproportionate number of weeks operating in the salmon, crab, or "other shellfish" fisheries (and thus weren't included in those subgroups).

All CP; this group includes all catcher-processors from the categories above, and is included to give overall measures for the catcher-processor sector.

Catcher Vessels:

TCV BSP 125; includes all vessels for which trawl catch accounts for more than 15% of total catch value, value of Bering Sea pollock catch is greater than value of catch of all other species combined, vessel length is greater than or equal to 125 ft., and total value of groundfish catch is greater than $5000. All of these vessels fishing after 1998 are AFA-eligible.

TCV BSP 60-124; includes all vessels for which trawl catch accounts for more than 15% of total catch value, value of Bering Sea pollock catch is greater than value of catch of all other species combined, vessel length is 60 ft. to 124 ft., and total value of groundfish catch is greater than $5000. All of these vessels fishing after 1998 are AFA-eligible.

TCV Div. AFA; includes all vessels that are AFA-eligible for which trawl catch accounts for more than 15% of total catch value, value of Bering Sea pollock catch is less than value of catch of all other species combined, vessel length is greater than or equal to 60 ft., and total value of groundfish catch is greater than $5000.

TCV Non-AFA; includes all vessels that are not AFA-eligible for which trawl catch accounts for more than 15% of total catch value, value of Bering Sea pollock catch is less than value of catch of all other species combined, vessel length is greater than or equal to 60 ft., and total value of groundfish catch is greater than $5000.

TCV < 60; includes all vessels for which trawl catch accounts for more than 15% of total catch value, vessel length is less than 60 ft., and total value of groundfish catch is greater than $2500.

PCV; includes all vessels that are not trawl CVs for which the value of pot catch is greater than15% of total catch value, vessel length is greater than or equal to 60 ft., and total value of groundfish catch is greater than $5000.

LCV; includes all vessels that are not trawl CVs or pot CVs for which vessel length is greater than or equal to 60 ft. and total value of groundfish catch is greater than $2000, excluding halibut and state water sablefish.

FGCV 33-59; includes all vessels that are not trawl CVs for which vessel length is 33 to 59 ft., and total value of groundfish catch is greater than $2000.

FGCV 32; includes all vessels that are not trawl CVs for which vessel length is less than or equal to 32 ft., and total value of groundfish catch is greater than $1000.

Salmon CV, Crab CV; these groups are comprised of vessels that do not fit into the other catcher vessel categories above, and spend a majority of their fishery-weeks in salmon or crab, respectively.

Other CV; these vessels do not fit into the other catcher vessel categories above, and did not spend a disproportionate number of weeks operating in the salmon or crab fisheries (and thus weren't included in those subgroups). These vessels tend to spend similar amounts of time landing salmon, herring, and various shellfish, albeit in small quantities.

All CV; this group includes all catcher vessels from the categories above, and is included to give overall measures for the catcher vessel sector

Table 1. Actual Catch (in metric tons), Capacity Estimates, Excess Capacity, and Week-based FU Measures, by Species[15], for Catcher-Processors and Catcher Vessels, 2001						
	Actual Catch	$\hat{C}$	Excess Capacity	$\tilde{C}$	Excess Capacity	Week-based FU
Atka Mackerel	57,167	66,886	17.00%	66,893	17.01%	0.404
Flatfish	118,542	149,009	25.70%	149,330	25.97%	0.404
Pacific Cod	227,532	306,976	34.92%	318,117	39.81%	0.404
Pollock	1,449,333	2,010,866	38.74%	2,030,470	40.10%	0.404
Rockfish	26,559	32,208	21.27%	32,595	22.73%	0.404
Sablefish	15,101	18,691	23.77%	20,137	33.35%	0.404
Other Groundfish	5,987	7,757	29.56%	7,861	31.30%	0.404
Salmon	288,850	366,036	26.72%	404,572	40.06%	0.645
Herring	33,654	42,656	26.75%	46,240	37.40%	0.196
Halibut	27,176	31,587	16.23%	40,023	47.27%	0.426
Scallop	251	306	21.91%	470	87.25%	0.024
Golden King Crab	3,006	6,608	119.83%	7,018	133.47%	0.278
Red King Crab	3,963	15,037	279.43%	15,909	301.44%	0.278
Tanner Crab	11,335	44,660	294.00%	48,194	325.18%	0.278
Other Shellfish	468	528	12.82%	576	23.08%	0.252
Other Species	1,571	1,710	8.80%	2,144	36.46%	0.258
All Species	**2,270,495**	**3,101,521**	**36.60%**	**3,190,549**	**40.52%**	**0.661**

[15] The week-based FU measures are (unweighted) averages of the ratio of each vessel's 2001 weeks in that fishery to its maximum weeks in that fishery for 1990-2001. Thus, the FU measures for groundfish and crab are the same for each species classified in those fisheries. Note also that the week-based FU estimates for "All Species" reflects the ratio of each vessel's total 2001 weeks fishing to its maximum historical weeks fishing, not an average of the week-based CU scores from each fishery.

Table 2. Catcher-Processor Capacity Estimates										
	Atka Mackerel			Flatfish			Pacific Cod		
Subgroup	Actual	$\hat{C}$	$\tilde{C}$	Actual	$\hat{C}$	$\tilde{C}$	Actual	$\hat{C}$	$\tilde{C}$
ST-CP n=13	7,112	7,959	7,959	8,910	10,623	10,623	4,119	5,063	5,063
FT-CP n=4	-[16]	-	-	0.07	0.10	0.10	3,774	15,940	15,940
HT-CP n=23	49,827	58,571	58,571	93,144	117,102	117,102	25,749	32,922	32,922
P-CP n=9	7.90	17.6	21.5	220	284	330	7,888	10,669	11,412
L-CP n=43	135	139	141	2,557	2,783	2,791	107,305	130,258	130,923
Salmon CP n=102	-	-	-	-	-	-	0.95	2.18	2.18
Crab CP n=15	-	-	-	-	-	-	40.4	40.4	40.4
Halibut CP n=22	-	-	-	-	-	-	-	-	-
Other Shellfish CP n=9	-	-	-	-	-	-	-	-	-
Other CP n=6	-	-	-	-	-	-	-	-	-
All CP n=246	**57,082**	**66,688**	**66,693**	**104,831**	**130,793**	**130,848**	**148,877**	**194,896**	**196,304**

[16] "-" entries indicate that the subgroup did not catch any of that species in 2001.

Table 2. Catcher-Processor Capacity Estimates (continued)											
		Pollock				**Rockfish**				**Sablefish**	
Subgroup	Actual	$\hat{C}$	$\tilde{C}$		Actual	$\hat{C}$	$\tilde{C}$		Actual	$\hat{C}$	$\tilde{C}$
ST-CP n=13	506,153	692,768	692,768		1,993	2,243	2,243		35.5	40.7	40.7
FT-CP n=4	98,104	141,398	141,398		0.7	1.0	1.0		0.4	0.5	0.5
HT-CP n=23	16,827	20,989	20,989		15,652	18,496	18,496		802	1,078	1,078
P-CP n=9	130	145	165		0.35	0.39	0.44		8.6	28.1	35.4
L-CP n=43	4,901	6,196	6,215		236	278	279		1,754	2,026	2,034
Salmon CP n=102	-	-	-		-	-	-		-	-	-
Crab CP n=15	-	-	-		-	-	-		-	-	-
Halibut CP n=22	-	-	-		0.07	0.07	0.07		-	-	-
Other Shellfish CP n=9	-	-	-		-	-	-		-	-	-
Other CP n=6	-	-	-		-	-	-		-	-	-
All CP n=246	**626,116**	**861,497**	**861,536**		**17,882**	**21,018**	**21,019**		**2,602**	**3,175**	**3,189**

Table 2. Catcher-Processor Capacity Estimates (continued)											
	Other Groundfish			Salmon			Herring				
Subgroup	Actual	$\hat{C}$	$\tilde{C}$	Actual	$\hat{C}$	$\tilde{C}$	Actual	$\hat{C}$	$\tilde{C}$		
ST-CP n=13	651	935	935	-	-	-	-	-	-		
FT-CP n=4	0.43	0.66	0.66	-	-	-	-	-	-		
HT-CP n=23	637	734	734	-	-	-	-	-	-		
P-CP n=9	5.2	9.8	9.9	0.36	0.36	0.66	-	-	-		
L-CP n=43	1,980	2,416	2,417	-	-	-	-	-	-		
Salmon CP n=102	-	-	-	4,182	4,818	5,297	719	738	738		
Crab CP n=15	-	-	-	24.1	24.1	24.1	196	196	196		
Halibut CP n=22	-	-	-	62.2	65.3	70.2	-	-	-		
Other Shellfish CP n=9	-	-	-	142.8	147.1	151.1	3.89	3.89	4.09		
Other CP n=6	-	-	-	19.6	29.4	32.6	-	-	-		
All CP n=246	**3,274**	**4,096**	**4,096**	**4,432**	**5,085**	**5,577**	**919**	**937**	**938**		

Table 2. Catcher-Processor Capacity Estimates (continued)										
	Halibut			Scallop			Golden King Crab		
Subgroup	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$
ST-CP n=13	-	-	-	-	-	-	-	-	-
FT-CP n=4	-	-	-	-	-	-	-	-	-
HT-CP n=23	-	-	-	-	-	-	-	-	-
P-CP n=9	-	-	-	-	-	-	-	-	-
L-CP n=43	284	315	337	-	-	-	-	-	-
Salmon CP n=102	177	187	206	-	-	-	-	-	-
Crab CP n=15	0.65	0.65	0.65	-	-	-	462	595	595
Halibut CP n=22	259	305	317	4.69	4.69	5.27	-	-	-
Other Shellfish CP n=9	28.5	29.1	29.8	4.2	7.2	7.2	-	-	-
Other CP n=6	10.6	19.8	19.8	242.4	294.8	458.3	-	-	-
All CP n=246	**761**	**858**	**912**	**251**	**306**	**470**	**462**	**595**	**595**

Table 2. Catcher-Processor Capacity Estimates (continued)													
Subgroup	**Red King Crab**			**Tanner Crab**			**Other Shellfish**			**Other Species**		
	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$
ST-CP n=13	-	-	-	-	-	-	-	-	-	4.11	4.11	4.11
FT-CP n=4	-	-	-	-	-	-	-	-	-	-	-	-
HT-CP n=23	-	-	-	-	-	-	-	-	-	6.03	6.27	6.31
P-CP n=9	172	366	493	1,270	2,905	3,289	-	-	-	-	-	-
L-CP n=43	82.1	85.3	85.3	393	409	409	-	-	-	1.87	1.87	1.87
Salmon CP n=102	1.84	1.84	1.84	6.1	6.1	16.9	34.4	34.8	36.0	26.5	28.1	28.2
Crab CP n=15	155	209	240	220	667	783	0.69	0.80	0.80	-	-	-
Halibut CP n=22	1.05	1.05	1.05	11.98	11.98	11.98	8.7	8.7	11.3	0.80	0.82	0.90
Other Shellfish CP n=9	-	-	-	0.67	0.67	1.12	58.2	58.9	70.9	16.5	17.7	17.7
Other CP n=6	32.9	51.3	51.3	58.5	91.1	91.1	-	-	-	1.34	1.59	2.00
All CP n=246	**446**	**716**	**874**	**1,962**	**4,093**	**4,604**	**102**	**103**	**119**	**57.2**	**60.5**	**61.1**

Table 3. Catcher Vessel Capacity Estimates										
	Atka Mackerel			Flatfish			Pacific Cod		
Subgroup	Actual	$\hat{C}$	$\tilde{C}$	Actual	$\hat{C}$	$\tilde{C}$	Actual	$\hat{C}$	$\tilde{C}$
TCV BSP 125 n=30	31.3	133.3	133.9	964	1,525	1,529	3,288	5,539	5,568
TCV BSP 60-124 n=46	32.6	43.4	44.1	887	1,253	1,282	8,126	11,058	11,503
TCV Div. AFA n=29	20.8	20.9	21.8	3,522	4,290	4,373	12,345	17,643	18,061
TCV Non-AFA n=39	-[17]	-	-	6,754	9,284	9,377	10,720	14,856	15,087
TCV < 60 n=55	-	-	-	930	1,132	1,164	10,348	12,566	13,366
PCV n=162	0.04	0.07	0.10	55.7	70.7	72.2	15,519	27,781	33,270
LCV n=68	0.01	0.01	0.01	57.3	58.6	60.4	726	772	774
FGCV 33-59 n=939	-	-	-	172	218	234	13,620	17,499	19,116
FGCV 32 n=126	-	-	-	5.2	18.4	22	853	1,086	1,177
Salmon CV n=4150	-	-	-	5.6	5.6	5.6	404	405	459
Crab CV n=49	-	-	-	-	-	-	-	-	-
Other CV n=993	-	-	-	357.6	359	360	2,706	2,870	3,430
All CV n=6686	**85**	**198**	**200**	**13,711**	**18,216**	**18,482**	**78,655**	**112,080**	**121,813**

[17] "-" entries indicate that the subgroup did not catch any of that species in 2001.

Table 3. Catcher Vessel Capacity Estimates (continued)										
	Pollock			Rockfish			Sablefish			
Subgroup	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$	Actual	$\hat{C}$	$\widetilde{C}$	
TCV BSP 125 n=30	358,557	551,224	553,671	89.4	132.7	134.0	24.6	37.7	37.8	
TCV BSP 60-124 n=46	349,945	443,702	456,194	478	573	576	31.9	39.1	39.3	
TCV Div. AFA n=29	62,424	86,081	88,007	2,744	3,318	3,362	163	191	194	
TCV Non-AFA n=39	25,479	36,042	36,720	3,602	4,913	4,941	237	326	328	
TCV < 60 n=55	21,319	26,114	27,551	23.0	24.4	24.6	276	303	304	
PCV n=162	2.6	4.2	5.3	39.6	60.6	64.1	606	825	845	
LCV n=68	7.2	9.1	9.1	263	304	328	3,808	4,403	4,732	
FGCV 33-59 n=939	159	263	278	1,069	1,446	1,651	6,994	8,986	10,010	
FGCV 32 n=126	124	728	849	50.2	72.4	97.9	36.3	52.3	74.9	
Salmon CV n=4150	1,419	1,419	1,419	33.4	37.5	51.0	61.8	61.8	82.2	
Crab CV n=49	-	-	-	0.09	0.09	0.2	-	-	-	
Other CV n=993	3,781	3,781	4,230	284.5	307	345	259	289	298	
All CV n=6686	**823,217**	**1,149,369**	**1,168,934**	**8,677**	**11,190**	**11,576**	**12,499**	**15,516**	**16,948**	

Table 3. Catcher Vessel Capacity Estimates (continued)											
	Other Groundfish				Salmon				Herring		
Subgroup	Actual	$\hat{C}$	$\tilde{C}$		Actual	$\hat{C}$	$\tilde{C}$		Actual	$\hat{C}$	$\tilde{C}$
TCV BSP 125 n=30	1,076	1,545	1,556		31.5	31.5	41.4		59.3	63.5	73.4
TCV BSP 60-124 n=46	404	541	588		29.9	30.2	36.4		89.0	93.1	105.8
TCV Div. AFA n=29	545	678	691		19.2	20.3	26.9		43.1	50.5	52.6
TCV Non-AFA n=39	433	581	590		6.6	6.8	8.6		5.3	5.3	6.4
TCV < 60 n=55	70.0	86.1	89.3		10,338	11,516	13,620		612	673	787
PCV n=162	36.3	59.8	71.2		1.0	1.0	1.2		-	-	-
LCV n=68	23.8	25	25		42.7	50.1	135.7		55.9	166	221
FGCV 33-59 n=939	64.0	81.1	84.1		91,277	107,803	129,207		8,039	10,082	11,228
FGCV 32 n=126	0.6	1.0	2.17		1,428	2,176	2,717		103	183	219
Salmon CV n=4150	3.7	3.8	4.2		159,708	212,021	223,693		20,539	26,516	28,597
Crab CV n=49	-	-	-		-	-	- -		47.8	47.8	47.8
Other CV n=993	55.7	58.9	64.5		21,535	27,293	29,506		3,141	3,838	3,962
All CV n=6686	**2,713**	**3,661**	**3,765**		**284,418**	**360,951**	**398,995**		**32,735**	**41,719**	**45,302**

Table 3. Catcher Vessel Capacity Estimates (continued)											
		Halibut				**Golden King Crab**				**Red King Crab**	
Subgroup	Actual	$\hat{C}$	$\widetilde{C}$		Actual	$\hat{C}$	$\widetilde{C}$		Actual	$\hat{C}$	$\widetilde{C}$
TCV BSP 125 n=30	40.7	40.7	48.0		-	-	-		92.0	125.7	148.5
TCV BSP 60-124 n=46	23.1	23.1	30.4		-	-	-		209	249	256
TCV Div. AFA n=29	144.5	144.5	196.7		-	-	-		43.8	135.0	135.0
TCV Non-AFA n=39	538	610	707		95.8	517.4	517.4		63.3	213.4	275.4
TCV < 60 n=55	622	672	765		-	-	-		2.7	3.5	3.5
PCV n=162	2,295	2,733	4,584		1,140	2,377	2,722		2,318	9,636	10,091
LCV n=68	5,541	5,987	6,879		49.0	140	140		47.3	108.8	108.8
FGCV 33-59 n=939	10,886	12,810	16,148		-	-	-		-	-	-
FGCV 32 n=126	825	974	1,223		-	-	-		-	-	-
Salmon CV n=4150	961	1,154	1,367		-	-	-		-	-	-
Crab CV n=49	100	100	169		1,054	2,553	2,611		455	2,468	2,515
Other CV n=993	4,434	5,477	6,989		206	426	433		285	1,380	1,501
All CV n=6686	**26,415**	**30,729**	**39,111**		**2,544**	**6,013**	**6,423**		**3,517**	**14,321**	**15,035**

Table 3. Catcher Vessel Capacity Estimates (continued)											
		Tanner Crab				**Other Shellfish**				**Other Species**	
Subgroup	Actual	$\hat{C}$	$\widetilde{C}$		Actual	$\hat{C}$	$\widetilde{C}$		Actual	$\hat{C}$	$\widetilde{C}$
TCV BSP 125 n=30	78.7	103.3	103.3		0.3	0.3	0.5		358	360	521
TCV BSP 60-124 n=46	155	192	196		-	-	-		432	440	552
TCV Div. AFA n=29	16.9	33.7	33.7		0.04	0.04	0.04		128	128	177
TCV Non-AFA n=39	86.9	434.3	496.6		0.01	0.01	0.01		113	114	147
TCV < 60 n=55	-	-	-		-	-	-		28.5	28.5	36.7
PCV n=162	7,015	29,429	32,220		-	-	-		5.0	5.2	7.7
LCV n=68	127	275	275		2.1	3.5	3.5		15.7	16.9	17.7
FGCV 33-59 n=939	-	-	-		183	204	229		181	223	267
FGCV 32 n=126	-	-	-		-	-	-		2.1	4.0	5.0
Salmon CV n=4150	-	-	-		126	142	145		96	122	124
Crab CV n=49	1,198	6,066	6,162		-	-	-		-	-	-
Other CV n=993	694	4,032	4,102		53.7	75.2	78.8		155.1	208.7	229.6
All CV n=6686	**9,373**	**40,567**	**43,590**		**366**	**425**	**457**		**1,514**	**1,649**	**2,083**

Table 4. Catcher-Processor Catch-Based Capacity Utilization Estimates						
	Atka Mackerel		Flatfish		Pacific Cod	
Subgroup	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
ST-CP n=13	0.894	0.894	0.839	0.839	0.814	0.814
FT-CP n=4	-[18]	-	0.700	0.700	0.237	0.237
HT-CP n=23	0.851	0.851	0.795	0.795	0.782	0.782
P-CP n=9	0.449	0.367	0.775	0.667	0.739	0.691
L-CP n=43	0.971	0.957	0.919	0.916	0.824	0.820
Salmon CP n=102	-	-	-	-	0.436	0.436
Crab CP n=15	-	-	-	-	1.000	1.000
Halibut CP n=22	-	-	-	-	-	-
Other Shellfish CP n=9	-	-	-	-	-	-
Other CP n=6	-	-	-	-	-	-
All CP n=246	**0.856**	**0.856**	**0.802**	**0.801**	**0.764**	**0.758**

[18] "-" entries indicate that the subgroup did not catch any of that species in 2001.

Table 4. Catcher-Processor Catch-Based Capacity Utilization Estimates (continued)									
		Pollock			**Rockfish**			**Sablefish**	
Subgroup		$\hat{C}U$	$\tilde{C}U$		$\hat{C}U$	$\tilde{C}U$		$\hat{C}U$	$\tilde{C}U$
ST-CP n=13		0.731	0.731		0.889	0.889		0.872	0.872
FT-CP n=4		0.694	0.694		0.700	0.700		0.800	0.800
HT-CP n=23		0.802	0.802		0.846	0.846		0.744	0.744
P-CP n=9		0.897	0.788		0.897	0.795		0.306	0.243
L-CP n=43		0.791	0.789		0.849	0.846		0.866	0.862
Salmon CP n=102		-	-		-	-		-	-
Crab CP n=15		-	-		-	-		-	-
Halibut CP n=22		-	-		1.000	1.000		-	-
Other Shellfish CP n=9		-	-		-	-		-	-
Other CP n=6		-	-		-	-		-	-
All CP n=246		**0.727**	**0.727**		**0.851**	**0.851**		**0.820**	**0.816**

Table 4. Catcher-Processor Catch-Based Capacity Utilization Estimates (continued)						
	Other Groundfish		Salmon		Herring	
Subgroup	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
ST-CP n=13	0.696	0.696	-	-	-	-
FT-CP n=4	0.652	0.652	-	-	-	-
HT-CP n=23	0.868	0.868	-	-	-	-
P-CP n=9	0.531	0.525	1.000	0.545	-	-
L-CP n=43	0.820	0.819	-	-	-	-
Salmon CP n=102	-	-	0.868	0.790	0.974	0.974
Crab CP n=15	-	-	1.000	1.000	1.000	1.000
Halibut CP n=22	-	-	0.953	0.886	-	-
Other Shellfish CP n=9	-	-	0.971	0.945	1.000	0.951
Other CP n=6	-	-	0.667	0.601	-	-
All CP n=246	**0.799**	**0.799**	**0.872**	**0.795**	**0.981**	**0.980**

Table 4. Catcher-Processor Catch-Based Capacity Utilization Estimates (continued)								
		Halibut			**Scallop**		**Golden King**	
Subgroup		$\hat{C}U$	$\tilde{C}U$		$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
ST-CP n=13		-	-		-	-	-	-
FT-CP n=4		-	-		-	-	-	-
HT-CP n=23		-	-		-	-	-	-
P-CP n=9		-	-		-	-	-	-
L-CP n=43		0.902	0.843		-	-	-	-
Salmon CP n=102		0.947	0.859		-	-	-	-
Crab CP n=15		1.000	1.000		-	-	0.776	0.776
Halibut CP n=22		0.849	0.817		1.000	0.890	-	-
Other Shellfish CP n=9		0.979	0.956		0.583	0.583	-	-
Other CP n=6		0.535	0.535		0.822	0.529	-	-
All CP n=246		**0.887**	**0.834**		**0.820**	**0.534**	**0.776**	**0.776**

Table 4. Catcher-Processor Catch-Based Capacity Utilization Estimates (continued)									
	Red King		Tanner Crab		Other Shellfish		Other Species	
Subgroup	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
ST-CP n=13	-	-	-	-	-	-	1.000	1.000
FT-CP n=4	-	-	-	-	-	-	-	-
HT-CP n=23	-	-	-	-	-	-	0.962	0.956
P-CP n=9	0.470	0.349	0.437	0.386	-	-	-	-
L-CP n=43	0.962	0.962	0.961	0.961	-	-	1.000	1.000
Salmon CP n=102	1.000	1.000	1.000	0.361	0.989	0.956	0.943	0.940
Crab CP n=15	0.742	0.646	0.330	0.281	0.863	0.863	-	-
Halibut CP n=22	1.000	1.000	1.000	1.000	1.000	0.770	0.976	0.889
Other Shellfish CP n=9	-	-	1.000	0.598	0.988	0.821	0.932	0.932
Other CP n=6	0.641	0.641	0.642	0.642	-	-	0.843	0.670
All CP n=246	**0.623**	**0.510**	**0.479**	**0.426**	**0.990**	**0.857**	**0.945**	**0.936**

Table 5. Catcher Vessel Catch-Based Capacity Utilization Estimates						
	Atka Mackerel		Flatfish		Pacific Cod	
Subgroup	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
TCV BSP 125 n=30	0.235	0.234	0.632	0.630	0.594	0.591
TCV BSP 60-124 n=46	0.751	0.739	0.708	0.692	0.735	0.706
TCV Div. AFA n=29	0.995	0.954	0.821	0.805	0.700	0.684
TCV Non-AFA n=39	-[19]	-	0.727	0.720	0.722	0.711
TCV < 60 n=55	-	-	0.822	0.799	0.823	0.774
PCV n=162	0.571	0.400	0.788	0.771	0.559	0.466
LCV n=68	1.000	1.000	0.978	0.949	0.940	0.938
FGCV 33-59 n=939	-	-	0.789	0.735	0.778	0.712
FGCV 32 n=126	-	-	0.283	0.236	0.785	0.725
Salmon CV n=4150	-	-	1.000	1.000	0.998	0.880
Crab CV n=49	-	-	-	-	-	-
Other CV n=993	-	-	0.996	0.993	0.943	0.789
All CV n=6686	**0.429**	**0.425**	**0.753**	**0.742**	**0.702**	**0.646**

[19] "-" entries indicate that the subgroup did not catch any of that species in 2001.

Table 5. Catcher Vessel Catch-Based Capacity Utilization Estimates (continued)								
	Pollock			**Rockfish**			**Sablefish**	
Subgroup	$\hat{C}U$	$\tilde{C}U$		$\hat{C}U$	$\tilde{C}U$		$\hat{C}U$	$\tilde{C}U$
TCV BSP 125 n=30	0.650	0.648		0.674	0.667		0.653	0.651
TCV BSP 60-124 n=46	0.789	0.767		0.834	0.830		0.816	0.812
TCV Div. AFA n=29	0.725	0.709		0.827	0.816		0.853	0.840
TCV Non-AFA n=39	0.707	0.694		0.733	0.729		0.727	0.723
TCV < 60 n=55	0.816	0.774		0.943	0.935		0.911	0.908
PCV n=162	0.619	0.491		0.653	0.618		0.735	0.717
LCV n=68	0.791	0.791		0.865	0.802		0.865	0.805
FGCV 33-59 n=939	0.605	0.572		0.739	0.647		0.778	0.699
FGCV 32 n=126	0.170	0.146		0.693	0.513		0.694	0.485
Salmon CV n=4150	1.000	1.000		0.891	0.655		1.000	0.752
Crab CV n=49	-	-		1.000	0.450		-	-
Other CV n=993	1.000	0.894		0.927	0.825		0.896	0.869
All CV n=6686	**0.716**	**0.704**		**0.775**	**0.750**		**0.806**	**0.737**

Table 5. Catcher Vessel Catch-Based Capacity Utilization Estimates (continued)									
		Other Groundfish			**Salmon**			**Herring**	
Subgroup		$\hat{C}U$	$\widetilde{C}U$		$\hat{C}U$	$\widetilde{C}U$		$\hat{C}U$	$\widetilde{C}U$
TCV BSP 125 n=30		0.696	0.692		1.000	0.761		0.934	0.808
TCV BSP 60-124 n=46		0.747	0.687		0.990	0.821		0.956	0.841
TCV Div. AFA n=29		0.804	0.789		0.946	0.714		0.853	0.819
TCV Non-AFA n=39		0.745	0.734		0.971	0.767		1.000	0.828
TCV < 60 n=55		0.813	0.784		0.898	0.759		0.909	0.778
PCV n=162		0.607	0.510		1.000	0.833		-	-
LCV n=68		0.952	0.952		0.852	0.315		0.337	0.253
FGCV 33-59 n=939		0.789	0.761		0.847	0.706		0.797	0.716
FGCV 32 n=126		0.600	0.276		0.656	0.526		0.563	0.470
Salmon CV n=4150		0.974	0.881		0.753	0.714		0.775	0.718
Crab CV n=49		-	-		-	-		1.000	1.000
Other CV n=993		0.946	0.864		0.789	0.730		0.818	0.793
All CV n=6686		**0.741**	**0.721**		**0.788**	**0.713**		**0.785**	**0.723**

Table 5. Catcher Vessel Catch-Based Capacity Utilization Estimates (continued)							
	Halibut		**Golden King**		**Red King**		
Subgroup	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
TCV BSP 125 n=30	1.000	0.848	-	-	0.732	0.620
TCV BSP 60-124 n=46	1.000	0.760	-	-	0.839	0.816
TCV Div. AFA n=29	1.000	0.735	-	-	0.324	0.324
TCV Non-AFA n=39	0.882	0.761	0.185	0.185	0.297	0.230
TCV < 60 n=55	0.926	0.813	-	-	0.771	0.771
PCV n=162	0.840	0.501	0.480	0.419	0.241	0.230
LCV n=68	0.926	0.805	0.350	0.350	0.435	0.435
FGCV 33-59 n=939	0.850	0.674	-	-	-	-
FGCV 32 n=126	0.847	0.675	-	-	-	-
Salmon CV n=4150	0.833	0.703	-	-	-	-
Crab CV n=49	1.000	0.592	0.413	0.404	0.184	0.181
Other CV n=993	0.810	0.634	0.484	0.476	0.207	0.190
All CV n=6686	**0.860**	**0.675**	**0.423**	**0.396**	**0.246**	**0.234**

Table 5. Catcher Vessel Catch-Based Capacity Utilization Estimates (continued)						
	Tanner Crab		Other Shellfish		Other Species	
Subgroup	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$	$\hat{C}U$	$\tilde{C}U$
TCV BSP 125 n=30	0.762	0.762	1.000	0.600	0.994	0.687
TCV BSP 60-124 n=46	0.807	0.791	-	-	0.982	0.783
TCV Div. AFA n=29	0.501	0.501	1.000	1.000	1.000	0.723
TCV Non-AFA n=39	0.200	0.175	1.000	1.000	0.991	0.769
TCV < 60 n=55	-	-	-	-	1.000	0.777
PCV n=162	0.238	0.218	-	-	0.962	0.649
LCV n=68	0.462	0.462	0.600	0.600	0.929	0.887
FGCV 33-59 n=939	-	-	0.897	0.799	0.812	0.678
FGCV 32 n=126	-	-	-	-	0.525	0.420
Salmon CV n=4150	-	-	0.887	0.869	0.787	0.774
Crab CV n=49	0.197	0.194	-	-	-	-
Other CV n=993	0.172	0.169	0.714	0.681	0.743	0.676
All CV n=6686	**0.231**	**0.215**	**0.861**	**0.801**	**0.918**	**0.727**

Table 6. Mean Catcher-Processor Week-based Fishery Utilization Measures										
Subgroup		**FU_{Total}**	**$FU_{Groundfish}$**	**FU_{Salmon}**	**$FU_{Herring}$**	**$FU_{Halibut}$**	**$FU_{Scallop}$**	**FU_{Crab}**	**$FU_{Shellfish}$**	**$FU_{OtherSpecies}$**
ST-CP n=13		0.759	0.759	0.000	-[20]	-	-	-	-	.500
FT-CP n=4		0.572	0.572	-	-	-	-	-	-	-
HT-CP n=23		0.760	0.759	0.000	-	-	-	-	0.000	0.300
P-CP n=9		0.462	0.470	1.000	-	-	-	0.183	0.000	-
L-CP n=43		0.814	0.802	0.000	-	0.388	-	0.071	-	0.143
Salmon CP n=102		0.856	0.002	0.902	0.559	0.592	-	0.500	0.836	0.421
Crab CP n=15		0.883	0.333	1.000	1.000	1.000	-	0.931	0.583	-
Halibut CP n=22		0.700	0.071	0.618	0.000	0.714	1.000	1.000	0.400	0.464
Other Shellfish CP n=9		0.834	0.000	0.642	1.000	0.666	0.166	0.666	0.925	0.300
Other CP n=6		0.711	0.000	0.222	-	0.200	0.813	0.300	-	0.438
All CP n=246		**0.799**	**0.479**	**0.793**	**0.642**	**0.588**	**0.655**	**0.551**	**0.690**	**0.378**

[20] "-" entries indicate that the vessels in this subgroup did not participate in this fishery in 2001.

Table 7. Catcher Vessel Week-based Fishery Utilization Measures										
Subgroup		**FU_{Total}**	**$FU_{Groundfish}$**	**FU_{Salmon}**	**$FU_{Herring}$**	**$FU_{Halibut}$**	**$FU_{Scallop}$**	**FU_{Crab}**	**$FU_{Shellfish}$**	**$FU_{OtherSpecies}$**
TCV BSP 125 n=30		0.616	0.620	1.000	0.809	1.000	-[21]	0.742	0.642	0.925
TCV BSP 60-124 n=46		0.761	0.775	0.944	0.667	0.974	-	0.269	0.270	0.952
TCV Div. AFA n=29		0.734	0.738	0.933	0.608	1.000	0.000	0.340	0.545	0.847
TCV Non-AFA n=39		0.669	0.664	0.741	0.395	0.869	0.000	0.622	0.250	0.848
TCV < 60 n=55		0.742	0.629	0.740	0.304	0.596	-	0.100	0.000	0.632
PCV n=162		0.351	0.311	0.080	0.000	0.399	0.000	0.180	0.000	0.252
LCV n=68		0.717	0.700	0.190	0.333	0.768	0.000	0.083	0.240	0.296
FGCV 33-59 n=939		0.635	0.402	0.579	0.142	0.399	-	0.000	0.211	0.234
FGCV 32 n=126		0.527	0.285	0.460	0.073	0.393	-	0.000	0.000	0.169
Salmon CV n=4150		0.669	0.295	0.686	0.140	0.184	-	0.111	0.279	0.122
Crab CV n=49		0.446	0.125	0.000	0.119	0.636	-	0.470	0.000	-
Other CV n=993		0.688	0.426	0.425	0.202	0.618	-	0.261	0.212	0.267
All CV n=6686		**0.657**	**0.402**	**0.640**	**0.182**	**0.421**	**0.000**	**0.269**	**0.238**	**0.254**

[21] "-" entries indicate that the vessels in this subgroup did not participate in the fishery in 2001.

Table 8. Mean Annual Catcher-Processor Fishing Weeks, 1990-2001[22]												
Subgroup	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
ST-CP	34.6	30.5	22.6	19.5	19.2	18.0	17.6	16.1	17.8	20.4	24.2	28.4
# of vessels:	20	20	20	18	20	20	18	16	16	12	11	13
FT-CP	39.9	37.1	34.4	26.8	24.6	22.5	21.8	19.2	20.3	21.5	22.0	24.5
# of vessels:	17	18	18	22	15	13	14	13	12	4	4	4
HT-CP	32.2	29.9	35.4	34.9	30.8	26.5	31.1	31.2	31.9	30.4	31.9	32.8
# of vessels:	25	29	28	25	27	35	33	32	29	29	30	23
P-CP	21.0	30.2	28.8	11.3	9.0	19.2	19.9	16.6	18.9	19.9	12.3	15.8
# of vessels:	10	14	15	13	12	15	16	17	11	14	16	9
L-CP	30.8	27.7	25.8	20.4	20.6	23.6	21.7	25.7	26.3	25.4	25.1	31.1
# of vessels:	37	52	65	68	66	62	62	56	54	53	56	43
Salmon CP	12.0	12.9	11.8	13.9	14.4	14.1	13.2	12.4	12.7	13.9	12.0	11.7
# of vessels:	24	31	34	57	73	93	111	75	92	105	131	102
Crab CP	30.3	27.4	25.1	14.8	11.9	10.6	7.9	12.5	12.4	10.8	11.2	7.7
# of vessels:	12	14	14	10	7	5	8	12	13	14	5	15
Halibut CP	-[23]	-	-	3.5	-	5.1	5.2	4.2	7.1	7.9	-	6.5
# of vessels:	0	0	0	8	0	19	13	12	25	20	0	22
Other Shellfish CP	13.0	18.0	16.8	-	7.0	16.8	12.5	15.1	18.9	20.5	18.8	15.7
# of vessels:	4	4	6	0	10	4	13	7	7	4	6	9
Scallop CP[24]	-	-	15.8	9.0	-	1.7	-	7.3	6.2	5.0	-	-
# of vessels:	0	0	4	6	0	6	0	4	5	7	0	0
"Other Species" CP[25]	-	-	-	9.5	-	8.6	10.8	-	-	-	-	-
# of vessels:	0	0	0	4	0	5	4	0	0	0	0	0
Other CP	8.8	5.3	8.3	10.6	6.0	6.4	6.0	9.3	10.8	17.8	8.5	7.0
# of vessels:	4	6	4	5	5	5	5	4	6	5	8	6
All CP	**27.9**	**26.0**	**24.6**	**18.9**	**18.2**	**17.5**	**17.3**	**18.3**	**17.8**	**18.0**	**17.7**	**17.6**
# of vessels:	**153**	**188**	**208**	**236**	**235**	**282**	**297**	**248**	**270**	**267**	**267**	**246**

[22] The mean weeks listed represents the time spent in Alaskan commercial fisheries (state and federal), for the species listed in this report, by vessels that fished in Alaskan federally managed fisheries during 1990-2001.

[23] "-" entries indicate that the vessels in this subgroup did not participate in the Alaskan commercial fisheries in this year.

[24] This group, which was not defined for the 2001 capacity measures due to a lack of activity in 2001, is comprised of vessels whose predominant target were scallops.

[25] This group, which was not defined for the 2001 capacity measures due to a lack of activity, is comprised of vessels whose predominant target was lingcod, eels, and other infrequently caught forage species.

Table 9. Mean Annual Catcher Vessel Fishing Weeks, 1990-2001[26]												
Subgroup:	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
TCV BSP 125	16.8	22.1	22.3	17.5	17.2	17.3	17.3	17.1	19.5	18.0	19.7	19.2
# of vessels:	16	13	22	23	23	23	30	32	30	35	31	30
TCV BSP 60-124	24.9	25.1	23.9	17.0	19.3	17.4	16.8	16.6	17.0	16.7	20.6	21.3
# of vessels:	25	32	48	51	48	61	59	52	45	40	46	46
TCV Div. AFA	25.3	26.5	23.0	25.1	21.9	22.1	23.7	24.4	22.3	20.5	20.1	21.7
# of vessels:	34	47	31	30	27	22	19	25	32	33	29	29
TCV Non-AFA	17.8	16.7	15.9	17.7	17.2	15.5	20.2	19.8	18.1	17.6	16.3	17.0
# of vessels:	39	53	47	42	34	35	33	33	41	40	37	39
TCV < 60	14.8	15.5	16.4	15.3	16.5	15.8	17.0	16.2	18.0	19.2	18.5	17.5
# of vessels:	52	62	67	73	70	65	66	65	67	61	55	55
PCV	11.3	14.0	14.9	11.8	8.3	10.8	11.8	11.2	12.8	12.7	9.8	6.9
# of vessels:	160	178	177	170	173	154	163	143	151	161	177	162
LCV	7.2	7.4	8.3	6.5	5.7	7.7	7.9	7.9	8.1	9.3	8.4	10.4
# of vessels:	119	128	131	119	136	108	94	94	98	92	75	68
FGCV 33-59	11.7	12.0	13.2	12.0	11.5	12.3	11.8	12.0	12.3	13.3	12.4	12.3
# of vessels:	1,175	1,252	1,221	1,180	1,174	1,088	1,014	1,014	980	967	986	939
FGCV 32	9.1	8.7	10.5	8.7	9.2	9.8	8.7	8.9	9.0	8.9	8.7	7.9
# of vessels:	172	186	193	180	184	172	156	162	153	144	138	126
Salmon CV	7.2	6.6	7.4	6.9	7.1	7.0	6.9	6.7	6.4	6.6	6.4	6.8
# of vessels:	6,388	6,108	5,869	5,756	5,559	5,603	4,857	4,937	4,855	4,839	4,753	4,150
Crab CV	10.4	10.8	12.1	9.9	5.8	6.5	5.4	7.2	9.2	7.9	4.5	4.6
# of vessels:	49	49	47	59	67	72	61	46	36	37	44	49
Scallop CV[27]	10.5	15.5	-[28]	10.0	3.6	-	-	-	-	-	-	-
# of vessels:	4	4	0	4	5	0	0	0	0	0	0	0
Other CV	5.2	5.1	5.3	5.8	5.3	7.1	6.8	7.1	7.7	7.6	7.3	7.2
# of vessels:	1,849	1,881	1,762	1,443	1,433	1,112	1,154	1,176	996	1,069	657	993
All CV	**7.7**	**7.5**	**8.3**	**7.8**	**7.7**	**8.1**	**7.9**	**7.9**	**7.9**	**8.1**	**7.8**	**8.0**
# of vessels:	**10,082**	**9,993**	**9,615**	**9,130**	**8,933**	**8,515**	**7,706**	**7,779**	**7,484**	**7,518**	**7,028**	**6,686**

[26] The mean weeks listed represents the time spent in Alaskan commercial fisheries (state and federal), for the species listed in this report, by vessels that fished in Alaskan federally managed fisheries during 1990-2001.

[27] This group, which was not defined for the 2001 capacity measures due to a lack of activity in 2001, is comprised of vessels whose primary target were scallops.

[28] "-" entries indicate that the vessels in this subgroup did not participate in the Alaskan commercial fisheries in this year.