# 4.0 WALLEYE POLLOCK

The Bering Sea pollock fishery, and potential changes to the prosecution of the pollock fishery to reduce salmon bycatch under the alternatives, impacts the pollock stocks. This chapter provides information on pollock biology, distribution, and current survey and stock assessment information. This chapter analyses the impacts to pollock by estimating the ability of the pollock fleet to catch the full total allowable catch under the alternatives. Chapter 3 provides a description of the methodology used to conduct these analyses. The description of the pollock fishery and economic impacts to the pollock fishery from the alternatives are discussed in the RIR.

## 4.1 Overview of pollock biology and distribution

Overview information in this section is extracted from Ianelli et al. (2007). Other information on pollock may be found at the NMFS website, www.afsc.noaa.gov/refm.

Walleye pollock, *Theragra chalcogramma*, are a member of the order Gadiformes and family Gadidae. They are a semi-demersal, schooling species that are generally found at depths from 30 to 300 meters but have been recorded at depths as low as 950 meters (Mecklenburg *et al.* 2002). Pollock are usually concentrated on the outer shelf and slope of coastal waters but may utilize a wide variety of habitats as nearshore seagrass beds (Sogard and Olla 1993). Their distribution extends from the waters of the North Pacific Ocean off Carmel, California throughout the Gulf of Alaska in the eastern Pacific Ocean, across the North Pacific Ocean including the Bering Sea, Chukchi Sea, and Aleutian Islands, and in the western Pacific Ocean from the Sea of Japan north to the Sea of Okhotsk in the western Pacific Ocean (Mecklenburg *et al.* 2002, Hart 1973).

Pollock are considered a relatively fast growing and short-lived species and currently represents a major biological component of the Bering Sea ecosystem. Adult pollock are visual, opportunistic feeders that diet on euphausiids, copepods, and fish, with a majority of their diet from juvenile pollock (National Research Council 1996). In the eastern Bering Sea, cannibalism is the greatest source of mortality for juvenile pollock (Livingston 1989), but cannibalism is not prevalent in the Gulf of Alaska (GOA) (Bailey *et al.* 1999). Juvenile pollock reach sexual maturity and recruit to the fishery at about age four at lengths of 40 to 45 centimeters (Wespestad 1993). Most pollock populations spawn at consistent times and consistent locations each year, most often in sea valleys, canyons, deep water, or the outer margins of the continental shelf during late winter and early spring (Bailey *et al*. 1999). In the eastern Bering Sea, spawning occurs over the southeastern slope and shelf from March through June and over the northwest slope and shelf from June through August (Hinckley 1987). The main spawning location is on the southeastern shelf while the main rearing ground location is on the northeastern shelf (Ianelli et al. 2007).

For management purposes, pollock in the U.S. waters of the Bering Sea are divided into three stocks: the eastern Bering Sea stock, the Aleutian Islands stock, and the Central Bering Sea-Bogoslof Island stock (Ianelli *et al.* 2007). The extent to which pollock migrate across the boundaries of these three areas, across the boundaries of the Bering Sea U.S. EEZ and the Russian EEZ, and seasonally within the eastern Bering Sea is unclear. General migratory movements of adult pollock on and off the eastern Bering Sea shelf tend to follow a pattern of movement to the outer shelf edge and deep water in the winter months, to

spawning areas in the springtime, and to the outer and central shelf during the summer months to feed (Smith 1981).

Japanese mark-recapture studies during the summer/autumn feeding seasons have revealed that pollock migrate across the Bering Sea (Dawson 1989) suggesting the interchange of pollock between Russian and U.S. waters. There are concerns that Russian fisheries may be harvesting U.S. managed pollock stocks resulting in a higher fishing mortality. Although the few tagging studies in the Bering Sea have not provided information on spawning migrations, homing to specific spawning sites, and the characteristic of migrating populations as schools or individuals, tagging studies around Japan have been more informative. Mark-recapture studies in which pollock were tagged during the spawning season (April) in Japanese waters revealed migrations for spawning site fidelity, but diffuse mixing during the summer feeding season (Tsuji 1989).

### 4.1.1 Food habits/ecological role

In North American waters, pollock are most prevalent in the eastern Bering Sea. Because of their large biomass, pollock provide an important food source for other fishes, marine mammals as Steller sea lions (*Eumetopias jubatus*), northern fur seals (*Callorhinus ursinus*), and fin whales (*Balaenoptera physalus*), and marine birds as the northern fulmars (*Fulmarus glacialis*), kittiwakes (*Rissa tridactyla, Rissa brevirostris*), murres (*Uria aalge, Uria lomvia*), and puffins (*Fratercula corniculata, Lunda cirrhata*) (Kajimura and Fowler 1984). These predator-prey relationships between pollock and other organisms are an integral part of the balance that makes the eastern Bering Sea one of the most highly productive environments in the world.

In comparisons of the western Bering Sea (WBS) with the Eastern Bering Sea using mass-balance food-web models based on 1980-85 summer diet data, Aydin et al. (2002) found that the production in these two systems is quite different. On a per-unit-area measure, the western Bering Sea has higher productivity than the EBS. Also, the pathways of this productivity are different with much of the energy flowing through epifaunal species (e.g., sea urchins and brittlestars) in the WBS whereas for the EBS, crab and flatfish species play a similar role. In both regions, the keystone species in 1980-85 were pollock and Pacific cod. This study showed that the food web estimated for the EBS ecosystem appears to be relatively mature due to the large number of interconnections among species. In a more recent study based on 1990-93 diet data (see Boldt 2007 for methods), pollock remain in a central role in the ecosystem. The diet of pollock is similar between adults and juveniles with the exception that adults become more piscivorous (with consumption of pollock by adult pollock representing their third largest prey item). In terms of magnitude, pollock cannibalism may account for 2.5 million t to nearly 5 million t of pollock consumed (based on uncertainties in diet percentage and total consumption rate).

Regarding specific small-scale ecosystems of the EBS, Ciannelli et al. (2004) presented an application of an ecosystem model scaled to data available around the Pribilof Islands region. They applied bioenergetics and foraging theory to characterize the spatial extent of this ecosystem. They compared energy balance, from a food web model relevant to the foraging range of northern fur seals and found that a range of 100 nautical mile radius encloses the area of highest energy balance representing about 50% of the observed foraging range for lactating fur seals. This suggests that fur seals depend on areas outside the energetic balance region. This study develops a method for evaluating the shape and extent of a key ecosystem in the EBS (i.e., the Pribilof Islands). Subsequent studies have examined spatial and temporal patterns of age zero pollock in this region and showed that densities are highly variable (Winter et al. 2005, Swartzman et al. 2005).

The impact of predation by species other than pollock may have shifted in recent years. In particular, the increasing population of arrowtooth flounder in the Bering Sea is a concern, especially considering the

large predation caused by these flatfish in the Gulf of Alaska. Overall, the total non-cannibal groundfish predator biomass has gone down in the Bering Sea according to current stock assessments, with the drop of Pacific cod in the 1980s exceeding the rise of arrowtooth in terms of biomass (e.g., Fig. 4 in Boldt 2007). This also represents a shift in the age of predation, with arrowtooth flounder consuming primarily age-2 pollock, while Pacific cod primarily consume larger pollock. However, the dynamics of this predation interaction may be quite different than in the Gulf of Alaska. A comparison of 1990-94 natural mortality by predator for arrowtooth flounder in the Bering Sea and the Gulf of Alaska shows that they are truly a top predator in the Gulf of Alaska. In the Bering Sea, pollock, skates, and sharks all prey on arrowtooth flounder, giving the species a relatively high predation mortality.

The predation on small arrowtooth flounder by large pollock gives rise to a specific concern for the Bering Sea pollock stock. Walters and Kitchell (2001) describe a predator/prey system called "cultivation/depensation" whereby a species such as pollock "cultivates" its young by preying on species that would eat its young (for example, arrowtooth flounder). If these interactions are strong, the removal of the large pollock may lead to an accelerated decline, as the control it exerts on predators of its recruits is removed—this has been cited as a cause for a decline of cod in the Baltic Sea in the presence of herring feeding on cod young (Walters and Kitchell 2001). In situations like this, it is possible that predator culling (e.g., removing arrowtooth) may not have a strong effect towards controlling predation compared to applying additional caution to pollock harvest and thus preserving this natural control. At the moment, this concern for Bering Sea pollock is qualitative; work on extending a detailed, age-structured, multispecies statistical model (e.g., MSM; Jurado-Molina et al. 2005) to more completely model this complex interaction for pollock and arrowtooth flounder is continuing.

### 4.1.2 NMFS surveys and stock assessment

NMFS conducts bottom trawl surveys annually and echo-integration trawl surveys every other year. Both occur during summer months and provide a synoptic overview of relative densities of adult and pre-recruit pollock (Fig. 4-1).

Extensive observer sampling is conducted and a complete assessment is done each year for evaluating stock status and to form the basis of catch recommendations. The most recent assessment shows a declining biomass since 2003 and a period of recent below-average recruitment levels (Fig. 4-2; Ianelli et al. 2007). During 2002-2005 the EBS region pollock catch has averaged 1.463 million tons while for the period 1982-2000, the average was 1.15 million tons. The effect of this level of fishing continues to be closely monitored by resource assessment surveys and an extensive fishery observer program.

The assessment reporting process involves reviews done by the Council through the Groundfish Plan Team (which meet on assessment issues twice per year). The Plan Team prepares a summary report of the assessment as the introduction to the Stock Assessment and Fishery Evaluation (SAFE) report which contains separate chapters for each stock or stock complex. These are posted on the internet and can be obtained at http://www.afsc.noaa.gov/REFM/stocks/assessments.htm. Preliminary drafts are presented to the Council in early December where the SSC reviews the documents and makes final ABC recommendations. As part of the review process, the SSC formally provides feedback on aspects of research and improvements on assessments for the coming year. The SSC ABC recommendation is forwarded to the Council where the value represents an upper limit of where the TAC may be set.

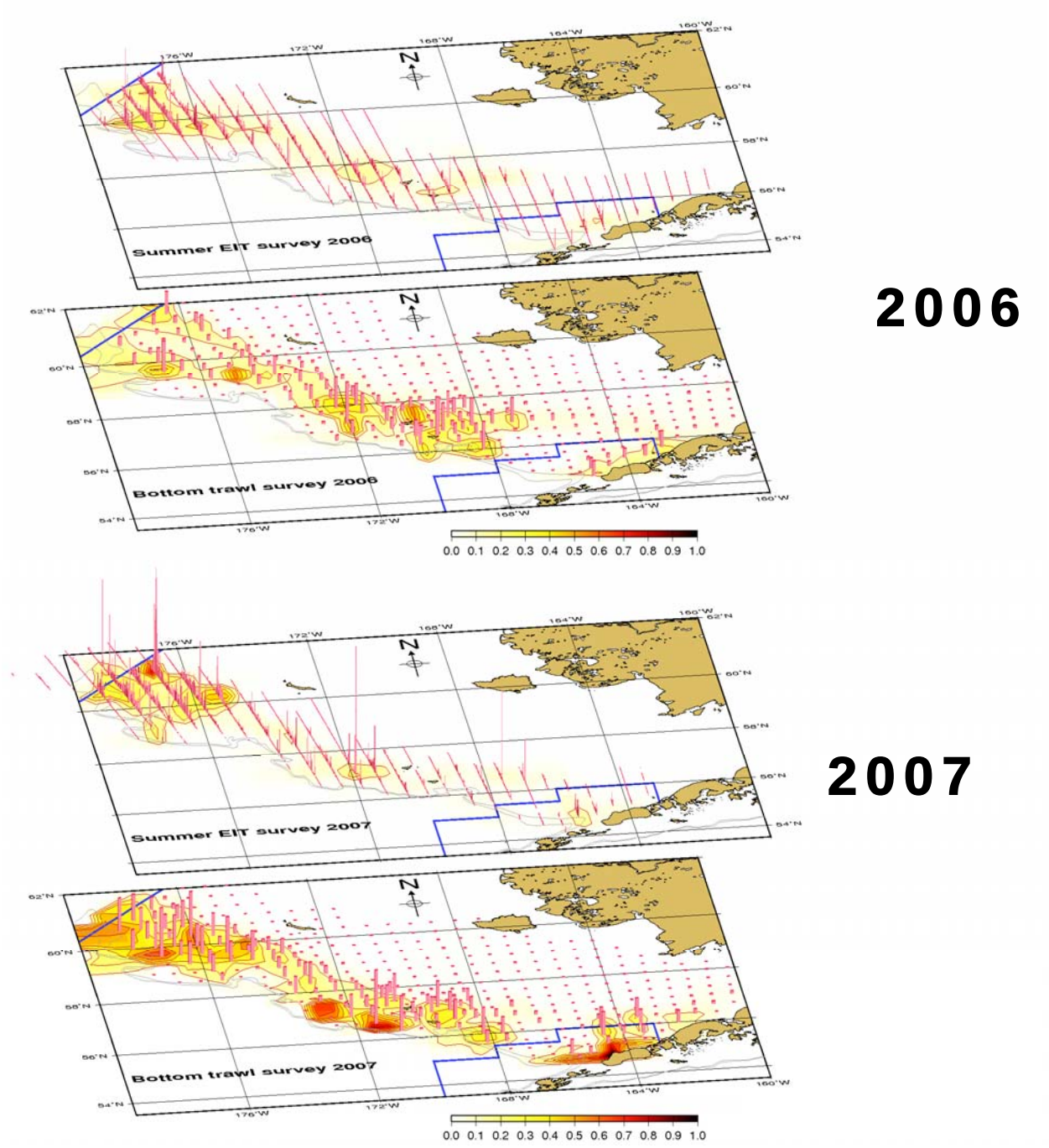


Fig. 4-1 Echo-integration trawl survey results for 2006 and 2007. The lower Fig. is the result from the BTS data in the same years. Vertical lines represent biomass of pollock as observed in the different surveys

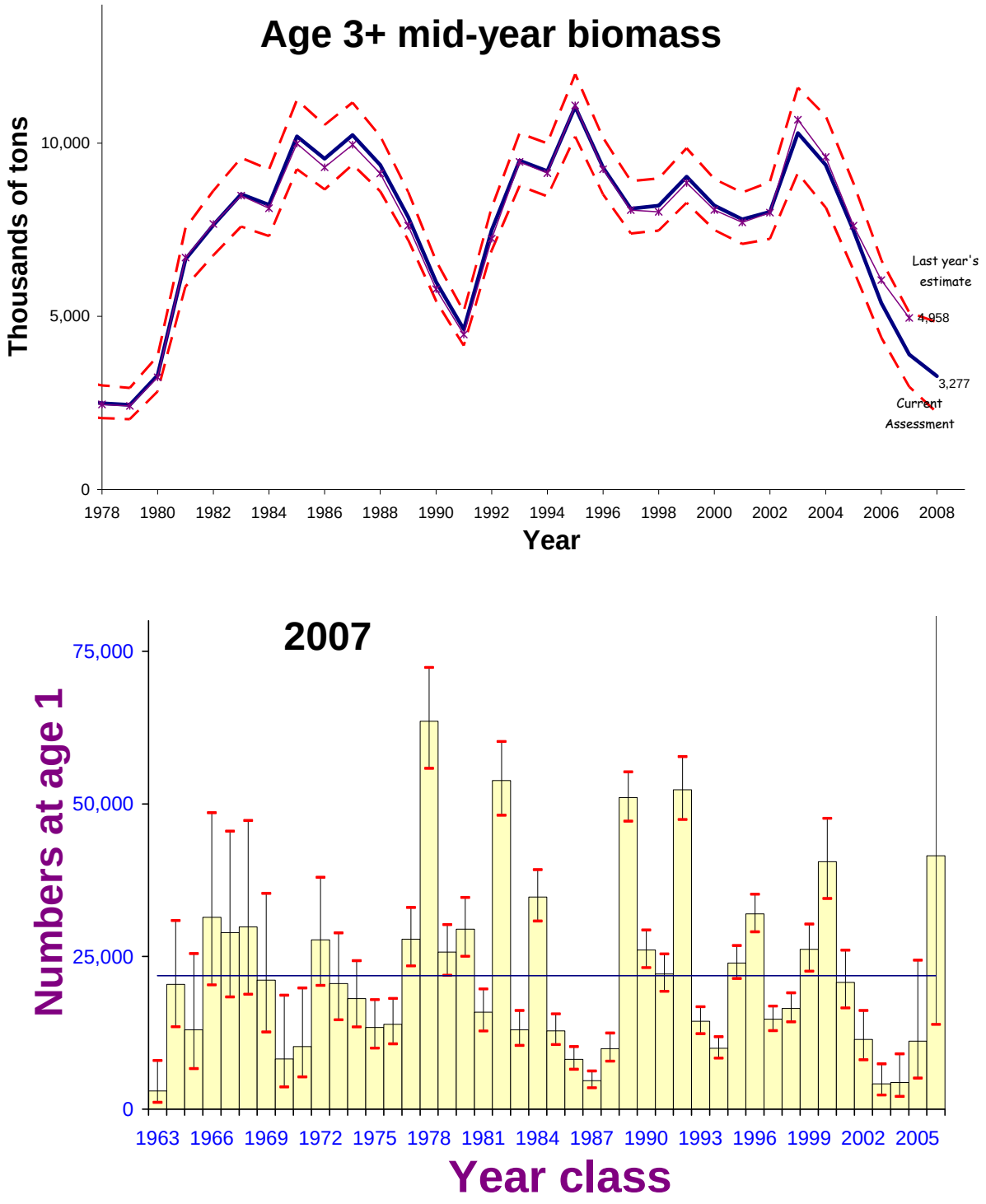


Fig. 4-2 Estimated age 3+ EBS mid-year pollock biomass, 1978-2008 (top) and age-1 year-class strengths. Approximate upper and lower 95% confidence limits are shown by dashed lines and error bars.

### 4.1.3 Pollock density within the Catcher Vessel Operation Area

The catcher vessel operational area (CVOA) is defined as the area of the Bering Sea east of 167°30' W. longitude, west of 163° W. longitude, south of 56° N. latitude, and north of the Aleutian Islands (Fig. 4-3). Vessels in the CP sector or CVs catching pollock for the mothership sector are prohibited from conducting directed fishing for pollock in the CVOA unless they are participating in a CDQ fishery. The CVOA is in effect during the pollock "B" season, from September 1 until the date that the inshore CV sector has harvested its "B" season allocation and is closed to directed fishing.

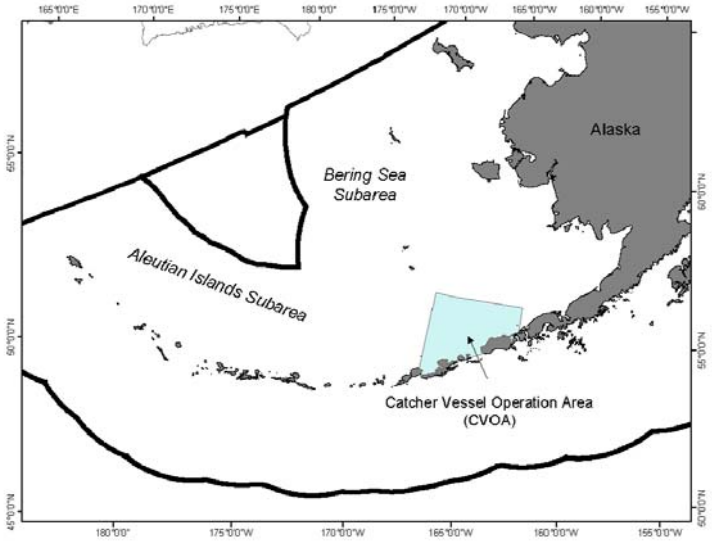


Fig. 4-3 Catcher Vessel Operational Area (CVOA)

Comparison of NMFS survey estimates of pollock biomass in the CVOA with pollock catch within the same region (1998-2007) suggests that expected CPUE in this region may be lower. The historical densities of pollock were evaluated within the CVOA. Based on mid-water acoustic survey data, the relative abundances of pollock in the CVOA has declined in the last three years (Fig. 4-4).

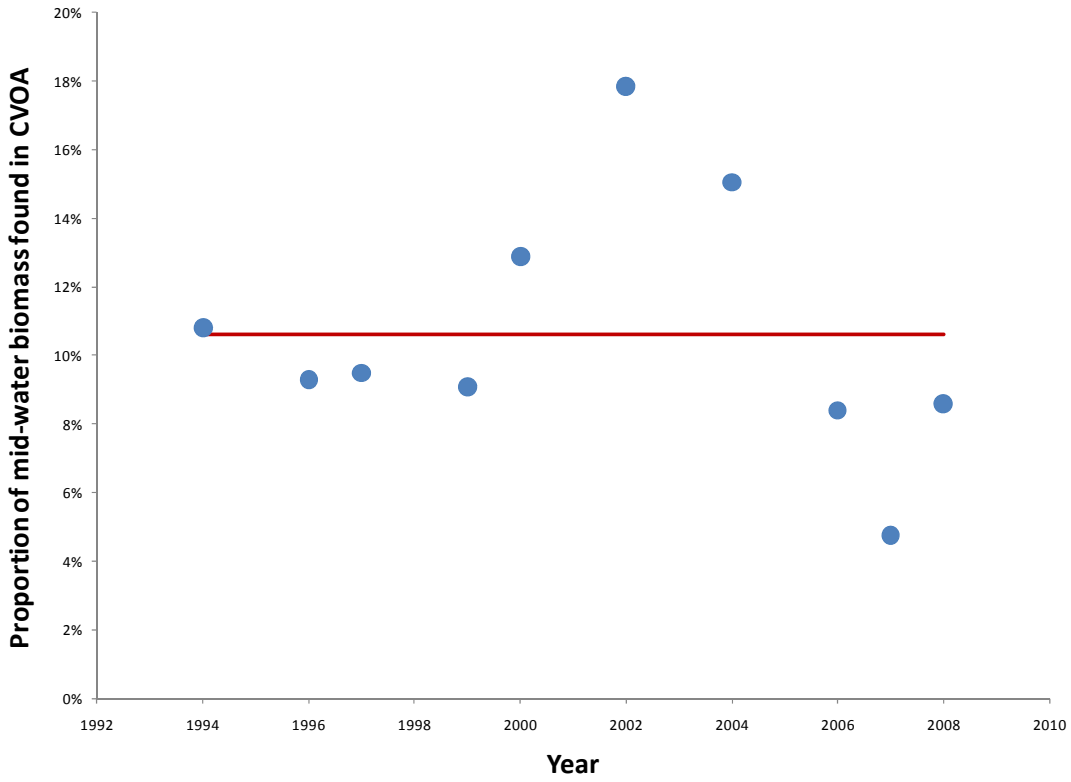


Fig. 4-4 Proportion of pollock found within the CVOA based on the echo-integration mid-water trawl survey (from Ianelli et al. 2008).

## 4.2 Impact analysis methods

The approach to evaluate the impact of the alternative management measures for Chinook salmon bycatch involved evaluating spatial patterns and the overall reduction in the ability to catch the full pollock TAC. To determine the likely dates when attainment of the salmon bycatch cap would occur under each option, we created a database that expanded observer data proportionately from each reporting area, month, and sector to match NMFS's catch accounting data as of April 30, 2008. This allows us to evaluate spatial components while ensuring that proportionate catch estimates are equivalent to total estimates maintained by NMFS. Additional information on the specific methodology for the impact analysis is contained in Chapter 3.

This analysis assumes that past fleet behavior appropriately approximates operational behavior under the alternatives and does not estimate changes in behavior. While it is expected that the fleet would change its behavior to fully harvest the pollock TAC and mitigate potential losses in pollock revenue, explicitly predicting changes in fleet behavior in a reasonable way would require data and analyses that are presently unavailable.

The area considerations were used to partition historical pollock data for differences in age and size due to either a regulatory closure (to evaluate impacts of Alternative 3) or for a closure that the industry is likely to impose to avoid suspension of fishing activities. Also, for the summer-fall fishery (B season), we examined the "early" with the "later" part of this season since Chinook bycatch rates tend to be higher later in the season. The question that we address is if the spatio-temporal aspects would result in the pollock population being more or less vulnerable to overfishing. For presentation purposes, the area east

and west of 170°W was identified, and the summer-fall season was split into pre- and post- August 31st periods.

*Alternative 3: Triggered closure areas*

Because the areas for which closures were triggered were different for the A and B season, we categorized observer data as falling inside or outside of these areas. The individual haul records were then aggregated up to match unique area-month-sector strata. Observer data from 1991 to 2002 were retained for the analysis, but for clarity we focus our evaluation of triggered closures on the 2003-2007 period only.

The treatment of the data involved finding when each specified trigger salmon bycatch level would have been reached, then summing values from that date onwards till the end of the season. For example, to compute the expected forgone pollock that would have occurred given a cap in a given year the analysis examined the cumulative daily bycatch records of Chinook and found the date that the cap was exceeded (e.g., Sept 15th); and then computed the tons of pollock that the fleet (or sector) caught from Sept 16th till the end of the season. This would be one measure of "forgone pollock" that might have accrued had one of the different salmon bycatch measures been selected.

## 4.3 Impacts on pollock

Alternatives 2 and 3 both use the same range of caps; the difference between the alternatives is that, when the cap is reached, Alternative 2 would close the fishery completely and Alternative 3 would close only certain areas to directed pollock fishing (see Fig. 2-2 and Fig. 2-3 for Alternative 3 closure areas) and allow fishing to continue in different areas. Alternative 2 would be likely, therefore, to result in more pollock forgone, i.e., in lower pollock harvests. Table 4-1 through Table 4-3 show hypothetical dates when the fisheries would have closed had Alternative 2 Chinook caps been in place. These dates translate into estimates of forgone pollock (Table 4-4 through Table 4-8). For Alternative 3, the impact of continued fishing outside the closed areas uses the hypothetical date projections for area closure impacts in terms of relative pollock catch rates (inside and outside of closed areas). Parallel impacts are expected to occur under each of the alternatives.

All four alternatives would likely close the fishery earlier than Alternative 1 (the status quo) and, thus, result in lower pollock catches (based on 2003-2007 data and assuming fleet behavior in the past approximates future behavior under each alternative). For the Alternative 2 analysis, it was assumed that transfers and rollovers were not allowed but were provided as options under Alternative 2. For Alternative 2, the A and B season closure dates would have varied considerably in different years under the four different cap level and seasonal split options, respectively (Table 4-9 and Table 4-14, respectively). Under Alternative 2, Table 4-10 shows that in the most constraining option, the A-season forgone pollock would have been a minimum of 182,300 t in 2004 to a maximum of 460,000 t in 2007. Even for the least constraining option, the 2007 A-season forgone pollock level would be nearly 119,000 t. The least constraining option was a cap of 87,500 with a 70/30 season split. Within each fishing sector, the variability of forgone pollock is higher over different scenarios within Alternative 2 than over different years (Table 4-11 through Table 4-13 for the A-season and in Table 4-15 through Table 4-18 for the B-season).

The analysis of Alternative 4 and 5 was similar to that for caps in Alternative 2, and retrospective fishery closures were tabulated from 2003-2007. However, for Alternatives 4 and 5, transfers between sectors within each season and rollovers between seasons were assumed. Alternatives 4 and 5 have identical lower cap levels (scenario 2) but differ in the higher cap level (scenario 1) and the rollover provision (80% in Alternative 4, 100% in Alternative 5).

The Alternative 4 analysis shows that sector specific closure dates for both the A and B seasons (in which sector-specific allowances with and without transferability among sectors and with 80% rollover from any remaining Chinook salmon bycatch from the A season to the B season) result in closure dates that are generally later than for those under Alternative 2 (Table 4-19). For example, under the least constraining cap scenario within Alternative 2, the 70/30 A/B season allocation would have resulted in fleetwide closures around mid-October in 2004, 2005, and 2007. The analogous Alternative 4 scenario (annual scenario 1) would have closed the entire fleet early in 2007, though the CPs and inshore CV sectors would have closed sooner than the under Alternative 2.

The estimated amounts of forgone pollock catch under Alternative 4 are generally lower than under Alternative 2. In 2007, the highest bycatch year, Alternative 4 would have had the highest level of fleetwide forgone pollock, ranging between 300 - 435 thousand t, depending on the annual scenario cap level and transferability (but assuming 80% rollover allowance; Table 4-21). The different rollover options (no rollover and 100% rollover) change the levels of forgone pollock slightly for the 100% rollover case and, to a greater extent, for the 0% rollover case (Table 4-22). Compared to the 80% rollover in Alternative annual scenarios 1 and 2, the 2003-2007 sum of the forgone pollock for the 0% and 100% rollover options highlights the impacts of the rollover provision Alternative 4 (Table 4-24).

The Alternative 5 (annual scenario 1) analysis shows that sector specific closure dates for both the A and B seasons result in closure dates that are several days earlier than those under the similar scenario of Alternative 4 (Table 4-20). For example, under the assumption of full A season transferability, Alternative 5 scenario 1 would have closed each sector of the fishery between 3 to 9 days earlier in the 2007 A season, and 2 to 7 days earlier in the B season (Table 4-20).

The estimated amounts of forgone pollock catch under Alternative 5 annual scenario 1 are higher than under Alternative 4 annual scenario 1 in conjunction with the earlier closure dates by sector. In 2007, the highest bycatch year, Alternative 5 annual scenario 1 would have resulted in forgone pollock of approximately 50 thousand tons more than under the higher cap level in Alternative 4 annual scenario 1(Table 4-23).

Alternative 4 and 5 annual scenarios 2 are equivalent except for the different rollover provision whereby Alternative 5 includes 100% rollover while Alternative 4 includes an 80% rollover provision. The different rollover options (no rollover and 100% rollover) change the levels of forgone pollock slightly for the 100% rollover case and, to a greater extent, for the 0% rollover case (Table 4-22). Compared to the 80% rollover in the Alternative 4, the 2003-2007 sum of the forgone pollock for the 0% and 100% rollover options highlights the impacts of the rollover provision Alternative 4 (Table 4-24). Further discussion of the differences in these rollover provisions for the same cap level are contained in Chapter 5 section 5.3.3.

Analysis indicates that Alternatives 2, 3, 4, and 5 would make it more difficult for fishermen to catch the full TAC for EBS pollock without changing their fishing behavior to avoid Chinook salmon bycatch. If the pollock TAC was not fully harvested, fishing would have less impact on the stock, and the pollock fishing mortality rates may be lower than biologically acceptable levels. Hence, the Chinook salmon management measures would not negatively impact the pollock stock in terms of total removals by the fishery.

Given the potential closures, the fishermen may go to greater extremes to avoid salmon bycatch, and the impact of this change in fishing behavior on the pollock stock requires consideration. For example, the measures may result in the fishery focusing on younger (or older) ages of pollock than otherwise would have been taken. Since these changes would be monitored and updated in future stock assessments, the risk to the stock is considered minor since conservation goals for maintaining spawning biomass would

remain central to the assessment. However, the change in fishing pattern could result in lower overall ABC and TAC levels, depending on how the age composition of the catch changed. The available length and age data were compiled from 2000-2007 and disaggregated by seasons (and partial seasons) and regions (east and west of 170°W) for analysis. The resulting numbers of samples by age are shown in Table 4-25.

Results indicate that pollock lengths-at-age and weights-at-age are smaller earlier in the season (Fig. 4-5). Should the fishery focus effort earlier in the B-season, then the yield per individual pollock will be lower. This would be reflected in the stock assessment analysis since updated mean weights-at-age would likely result in a lower ABC (and perhaps TAC), if all other factors are equal. Therefore, the potential biological effects of the any of the alternatives are expected to be correctly incorporated in the present pollock quota system.

Spatial effects of the alternatives on the size-at-age of pollock are compounded by seasonal effects, particularly within the summer-fall (B) season, even larger spatial and seasonal effects can be observed on weights-at-age (Fig. 4-6). While 170°W represents a proxy for fleet movement out of areas where salmon bycatch rates are high, this clearly demonstrates spatial consequences for expected size-at-age values assumed for pollock. Based on previous patterns of Chinook bycatch closures observed by the industry, most areas were east of 170°W, where the mean size at age is considerably larger than elsewhere. We can anticipate then that more restrictive closures will result in a general pattern that tends towards harvesting pollock at smaller sizes at age. As mentioned above, this would be reflected in the stock assessment analysis since updated mean weights-at-age are computed but could result in lower ABC and TAC recommendations.

The assumption that harvests may reach the pollock TAC under Alternative 3 depends on how difficult it is for fishermen to find pollock outside the closed areas. The data show that, in some years, the pollock catch rate is consistently higher outside the closed areas, although in other years the pollock catch rate is consistently lower for the CPs and inshore CVs and for the fleet as a whole (Fig. 4-7 through Fig. 4-12). Without evaluating a full catch-rate model that accounts for vessel size and other factors (search time, cooperative catch-rate reporting groups etc), this simple examination suggests that the extra effort required to fully catch the pollock TAC outside the closed area depends on when the closure occurs and where the pollock are, which, based on this analysis, appears to be highly variable between years.

The same pollock resource impacts identified for the hard caps under Alternative 2 would likely occur under Alternative 3 also—namely, that the fleet would be likely to fish earlier in the summer and tend to fish in areas farther from the core fishing grounds north of Unimak Island. Both of these effects would result in catches of pollock that are considerably smaller in mean size-at-age. This impact would likely result in smaller TACs since pollock harvests would not benefit from the summer growth period.

Table 4-1 Hypothetical closure dates, by year and season, under Alternative 2 Chinook salmon hard cap sector allocation Option 1 (Chinook bycatch allocated to sector proportional to pollock allocation).

| **opt1(AFA)** | | | A | | | | | B | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AB Split | Cap | Sect | 2003 | 2004 | 2005 | 2006 | 2007 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 50/50 | 87,500 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | M | --- | --- | --- | 23-Feb | 15-Feb | --- | --- | --- | --- | --- |
| | | P | --- | --- | --- | 21-Mar | 13-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 10-Feb | 2-Feb | --- | 23-Oct | 8-Oct | 22-Oct | 10-Oct |
| | 68,100 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | M | --- | --- | --- | 18-Feb | 2-Feb | --- | --- | --- | --- | --- |
| | | P | 15-Mar | --- | --- | 11-Mar | 8-Feb | --- | --- | --- | --- | --- |
| | | S | 23-Mar | --- | --- | 7-Feb | 29-Jan | --- | 12-Oct | 3-Oct | 13-Oct | 5-Oct |
| | 48,700 | CDQ | --- | --- | --- | --- | 3-Mar | --- | --- | --- | --- | 25-Oct |
| | | M | 15-Mar | --- | --- | 8-Feb | 28-Jan | --- | --- | --- | --- | --- |
| | | P | 19-Feb | --- | 1-Mar | 21-Feb | 4-Feb | --- | --- | --- | --- | --- |
| | | S | 27-Feb | 17-Mar | 24-Feb | 5-Feb | 25-Jan | --- | 2-Oct | 27-Sep | 2-Oct | 29-Sep |
| | 29,300 | CDQ | 12-Mar | --- | --- | 14-Mar | 18-Feb | --- | 27-Sep | --- | --- | 14-Oct |
| | | M | 13-Feb | 26-Feb | 17-Feb | 3-Feb | 24-Jan | 9-Oct | 23-Oct | --- | --- | 18-Oct |
| | | P | 11-Feb | 1-Mar | 11-Feb | 8-Feb | 26-Jan | --- | --- | --- | --- | 23-Oct |
| | | S | 12-Feb | 24-Feb | 10-Feb | 30-Jan | 23-Jan | 14-Oct | 16-Sep | 10-Sep | 17-Sep | 14-Sep |
| 58/42 | 87,500 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | M | --- | --- | --- | 28-Feb | 28-Feb | --- | --- | --- | --- | --- |
| | | P | --- | --- | --- | --- | 18-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 16-Feb | 7-Feb | --- | 14-Oct | 5-Oct | 16-Oct | 6-Oct |
| | 68,100 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | M | --- | --- | --- | 21-Feb | 10-Feb | --- | --- | --- | --- | --- |
| | | P | --- | --- | --- | 15-Mar | 11-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 9-Feb | 31-Jan | --- | 7-Oct | 1-Oct | 8-Oct | 2-Oct |
| | 48,700 | CDQ | --- | --- | --- | --- | 9-Mar | --- | --- | --- | --- | 18-Oct |
| | | M | 27-Mar | --- | --- | 10-Feb | 30-Jan | --- | 4-Nov | --- | --- | 26-Oct |
| | | P | 21-Feb | --- | 14-Mar | 26-Feb | 6-Feb | --- | --- | --- | --- | --- |
| | | S | 8-Mar | --- | 7-Mar | 6-Feb | 26-Jan | --- | 28-Sep | 22-Sep | 26-Sep | 21-Sep |
| | 29,300 | CDQ | --- | --- | --- | --- | 21-Feb | --- | 23-Sep | --- | --- | 12-Oct |
| | | M | 17-Feb | 3-Mar | 25-Feb | 5-Feb | 25-Jan | 7-Oct | 15-Oct | --- | --- | 13-Oct |
| | | P | 13-Feb | 5-Mar | 15-Feb | 10-Feb | 27-Jan | --- | --- | --- | --- | 18-Oct |
| | | S | 15-Feb | 1-Mar | 13-Feb | 1-Feb | 23-Jan | 8-Oct | 12-Sep | 1-Sep | 13-Sep | 12-Sep |
| 70/30 | 87,500 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | M | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | P | --- | --- | --- | --- | 1-Mar | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 21-Feb | 14-Feb | --- | 5-Oct | 29-Sep | 5-Oct | 30-Sep |
| | 68,100 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | 18-Oct |
| | | M | --- | --- | --- | 24-Feb | 21-Feb | --- | 4-Nov | --- | --- | 26-Oct |
| | | P | --- | --- | --- | --- | 16-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 13-Feb | 4-Feb | --- | 28-Sep | 22-Sep | 26-Sep | 21-Sep |
| | 48,700 | CDQ | --- | --- | --- | --- | --- | --- | 27-Sep | --- | --- | 14-Oct |
| | | M | --- | --- | --- | 18-Feb | 2-Feb | 9-Oct | 23-Oct | --- | --- | 18-Oct |
| | | P | 16-Mar | --- | --- | 11-Mar | 8-Feb | --- | --- | --- | --- | 23-Oct |
| | | S | 23-Mar | --- | --- | 7-Feb | 29-Jan | 13-Oct | 16-Sep | 10-Sep | 17-Sep | 14-Sep |
| | 29,300 | CDQ | --- | --- | --- | --- | 25-Feb | --- | 14-Sep | --- | --- | 7-Oct |
| | | M | 25-Feb | 26-Mar | 10-Mar | 6-Feb | 26-Jan | 4-Oct | 27-Sep | --- | --- | 25-Sep |
| | | P | 16-Feb | 11-Mar | 21-Feb | 15-Feb | 1-Feb | 10-Oct | --- | 14-Sep | --- | 2-Oct |
| | | S | 20-Feb | 9-Mar | 17-Feb | 3-Feb | 24-Jan | 3-Oct | 6-Sep | 22-Aug | 7-Sep | 9-Sep |

Table 4-2 Hypothetical closure dates, by year and season, under Alternative 2 Chinook salmon hard cap sector allocation Option 2a (3-year (2004-2006) average).

| **opt2a** | | | A | | | | | B | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AB Split | Cap | Sect | 2003 | 2004 | 2005 | 2006 | 2007 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 50/50 | 87,500 | CDQ | 6-Mar | --- | --- | 9-Mar | 19-Feb | --- | 30-Sep | --- | --- | 16-Oct |
| | | M | --- | --- | --- | 14-Feb | 30-Jan | --- | --- | --- | --- | --- |
| | | P | 19-Feb | --- | 4-Mar | 21-Feb | 5-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 23-Feb | 23-Feb | --- | --- | 28-Oct | --- | 25-Oct |
| | 68,100 | CDQ | 26-Feb | 12-Mar | 3-Mar | 1-Mar | 12-Feb | --- | 14-Sep | --- | --- | 8-Oct |
| | | M | 6-Mar | --- | --- | 6-Feb | 29-Jan | --- | --- | --- | --- | --- |
| | | P | 18-Feb | 11-Mar | 23-Feb | 14-Feb | 28-Jan | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 22-Feb | 7-Feb | --- | --- | 12-Oct | --- | 17-Oct |
| | 48,700 | CDQ | 11-Feb | 3-Mar | 22-Feb | 28-Feb | 11-Feb | 25-Sep | 13-Sep | --- | --- | 1-Oct |
| | | M | 18-Feb | 4-Mar | 24-Feb | 6-Feb | 22-Jan | 9-Oct | 28-Oct | --- | --- | 25-Oct |
| | | P | 10-Feb | 3-Mar | 8-Feb | 6-Feb | 21-Jan | --- | --- | --- | --- | 25-Oct |
| | | S | --- | --- | --- | 7-Feb | 30-Jan | --- | 14-Oct | 4-Oct | 19-Oct | 8-Oct |
| | 29,300 | CDQ | 2-Feb | 23-Feb | 14-Feb | 19-Feb | 3-Feb | 2-Sep | 5-Sep | 14-Sep | --- | 23-Sep |
| | | M | 3-Feb | 10-Feb | 1-Feb | 22-Jan | 21-Jan | 7-Oct | 28-Sep | --- | --- | 2-Oct |
| | | P | 2-Feb | 9-Feb | 31-Jan | 29-Jan | 20-Jan | 10-Oct | --- | 15-Sep | --- | 2-Oct |
| | | S | 26-Feb | 18-Mar | 24-Feb | 5-Feb | 22-Jan | --- | 28-Sep | 26-Sep | 3-Oct | 23-Sep |
| 58/42 | 87,500 | CDQ | 14-Mar | --- | --- | 17-Mar | 20-Feb | --- | 22-Sep | --- | --- | 9-Oct |
| | | M | --- | --- | --- | 22-Feb | 31-Jan | --- | --- | --- | --- | --- |
| | | P | 27-Feb | --- | --- | 1-Mar | 5-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 24-Mar | 23-Mar | --- | --- | 20-Oct | --- | 17-Oct |
| | 68,100 | CDQ | 5-Mar | --- | 11-Mar | 9-Mar | 12-Feb | 10-Oct | 14-Sep | --- | --- | 8-Oct |
| | | M | 21-Mar | --- | --- | 7-Feb | 30-Jan | 17-Oct | 5-Nov | --- | --- | 26-Oct |
| | | P | 19-Feb | 19-Mar | 3-Mar | 21-Feb | 5-Feb | --- | --- | --- | --- | 2-Nov |
| | | S | --- | --- | --- | 23-Feb | 15-Feb | --- | 28-Oct | 12-Oct | 27-Oct | 9-Oct |
| | 48,700 | CDQ | 11-Feb | 11-Mar | 23-Feb | 28-Feb | 11-Feb | 17-Sep | 6-Sep | 30-Sep | --- | 30-Sep |
| | | M | 19-Feb | 12-Mar | 4-Mar | 6-Feb | 22-Jan | 8-Oct | 20-Oct | --- | --- | 17-Oct |
| | | P | 11-Feb | 3-Mar | 15-Feb | 6-Feb | 28-Jan | --- | --- | --- | --- | 17-Oct |
| | | S | --- | --- | --- | 7-Feb | 30-Jan | --- | 13-Oct | 3-Oct | 11-Oct | 1-Oct |
| | 29,300 | CDQ | 10-Feb | 24-Feb | 21-Feb | 20-Feb | 11-Feb | 1-Sep | 29-Aug | 7-Sep | --- | 23-Sep |
| | | M | 10-Feb | 17-Feb | 8-Feb | 29-Jan | 21-Jan | 29-Sep | 27-Sep | --- | --- | 24-Sep |
| | | P | 2-Feb | 9-Feb | 31-Jan | 5-Feb | 20-Jan | 2-Oct | 24-Sep | 7-Sep | --- | 24-Sep |
| | | S | 6-Mar | 26-Mar | 3-Mar | 6-Feb | 22-Jan | --- | 27-Sep | 18-Sep | 25-Sep | 16-Sep |
| 70/30 | 87,500 | CDQ | --- | --- | --- | --- | 21-Feb | 3-Oct | 14-Sep | --- | --- | 8-Oct |
| | | M | --- | --- | --- | 23-Feb | 15-Feb | 17-Oct | 28-Oct | --- | --- | 25-Oct |
| | | P | 21-Mar | --- | --- | 16-Mar | 6-Feb | --- | --- | --- | --- | 26-Oct |
| | | S | --- | --- | --- | --- | --- | --- | 21-Oct | 4-Oct | 19-Oct | 9-Oct |
| | 68,100 | CDQ | 13-Mar | --- | --- | 17-Mar | 20-Feb | 17-Sep | 6-Sep | 30-Sep | --- | 30-Sep |
| | | M | --- | --- | --- | 15-Feb | 31-Jan | 8-Oct | 20-Oct | --- | --- | 17-Oct |
| | | P | 20-Feb | --- | 11-Mar | 1-Mar | 5-Feb | --- | --- | --- | --- | 17-Oct |
| | | S | --- | --- | --- | 10-Mar | 16-Mar | --- | 13-Oct | 3-Oct | 11-Oct | 1-Oct |
| | 48,700 | CDQ | 26-Feb | 12-Mar | 3-Mar | 1-Mar | 12-Feb | 2-Sep | 5-Sep | 14-Sep | --- | 23-Sep |
| | | M | 6-Mar | --- | --- | 6-Feb | 29-Jan | 7-Oct | 28-Sep | --- | --- | 2-Oct |
| | | P | 18-Feb | 11-Mar | 23-Feb | 14-Feb | 28-Jan | 10-Oct | --- | 15-Sep | --- | 2-Oct |
| | | S | --- | --- | --- | 22-Feb | 7-Feb | --- | 28-Sep | 26-Sep | 3-Oct | 23-Sep |
| | 29,300 | CDQ | 10-Feb | 2-Mar | 22-Feb | 20-Feb | 11-Feb | 1-Sep | 29-Aug | 29-Aug | --- | 1-Sep |
| | | M | 11-Feb | 25-Feb | 16-Feb | 29-Jan | 21-Jan | 29-Sep | 12-Sep | 22-Sep | --- | 2-Sep |
| | | P | 10-Feb | 17-Feb | 7-Feb | 5-Feb | 21-Jan | 9-Sep | 1-Sep | 30-Aug | --- | 10-Sep |
| | | S | 21-Mar | --- | --- | 6-Feb | 29-Jan | 16-Oct | 12-Sep | 4-Sep | 10-Sep | 9-Sep |

Table 4-3 Hypothetical closure dates, by year and season, under Alternative 2 Chinook salmon hard cap section allocation Option 2d (midpoints of the ranges provided by Option 1 and options 2(a-c) by sector).

| **opt 2d** | | | A | | | | | B | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AB Split | Cap | Sect | 2003 | 2004 | 2005 | 2006 | 2007 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 50/50 | 87,500 | CDQ | --- | --- | --- | --- | 9-Mar | --- | --- | --- | --- | --- |
| | | M | --- | --- | --- | 19-Feb | 5-Feb | --- | --- | --- | --- | --- |
| | | P | 18-Mar | --- | --- | 11-Mar | 8-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 19-Feb | 11-Feb | --- | --- | 14-Oct | --- | 16-Oct |
| | 68,100 | CDQ | --- | --- | --- | --- | 28-Feb | --- | --- | --- | --- | 20-Oct |
| | | M | 28-Mar | --- | --- | 10-Feb | 30-Jan | --- | --- | --- | --- | --- |
| | | P | 21-Feb | --- | 6-Mar | 25-Feb | 5-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 10-Feb | 1-Feb | --- | 23-Oct | 8-Oct | 22-Oct | 10-Oct |
| | 48,700 | CDQ | 17-Mar | --- | --- | --- | 20-Feb | --- | 29-Sep | --- | --- | 15-Oct |
| | | M | 24-Feb | 15-Mar | 9-Mar | 6-Feb | 26-Jan | 24-Oct | 4-Nov | --- | --- | 26-Oct |
| | | P | 15-Feb | 9-Mar | 18-Feb | 13-Feb | 31-Jan | --- | --- | --- | --- | --- |
| | | S | 17-Mar | --- | 24-Mar | 6-Feb | 27-Jan | --- | 10-Oct | 2-Oct | 10-Oct | 3-Oct |
| | 29,300 | CDQ | 21-Feb | 10-Mar | 25-Feb | 1-Mar | 13-Feb | --- | 16-Sep | --- | --- | 8-Oct |
| | | M | 10-Feb | 18-Feb | 10-Feb | 30-Jan | 23-Jan | 7-Oct | 14-Oct | --- | --- | 13-Oct |
| | | P | 8-Feb | 17-Feb | 6-Feb | 5-Feb | 24-Jan | --- | --- | --- | --- | 14-Oct |
| | | S | 17-Feb | 5-Mar | 15-Feb | 2-Feb | 24-Jan | --- | 26-Sep | 19-Sep | 22-Sep | 19-Sep |
| 58/42 | 87,500 | CDQ | --- | --- | --- | --- | --- | --- | --- | --- | --- | 24-Oct |
| | | M | --- | --- | --- | 22-Feb | 13-Feb | --- | --- | --- | --- | --- |
| | | P | --- | --- | --- | 16-Mar | 11-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 23-Feb | 16-Feb | --- | 26-Oct | 10-Oct | 25-Oct | 11-Oct |
| | 68,100 | CDQ | --- | --- | --- | --- | 5-Mar | --- | --- | --- | --- | 17-Oct |
| | | M | --- | --- | --- | 18-Feb | 1-Feb | --- | --- | --- | --- | --- |
| | | P | 28-Feb | --- | --- | 3-Mar | 7-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 16-Feb | 6-Feb | --- | 14-Oct | 5-Oct | 15-Oct | 6-Oct |
| | 48,700 | CDQ | --- | --- | --- | --- | 22-Feb | --- | 25-Sep | --- | --- | 13-Oct |
| | | M | 11-Mar | --- | --- | 8-Feb | 27-Jan | 11-Oct | 27-Oct | --- | --- | 22-Oct |
| | | P | 17-Feb | 16-Mar | 26-Feb | 18-Feb | 3-Feb | --- | --- | --- | --- | 26-Oct |
| | | S | 27-Mar | --- | --- | 8-Feb | 29-Jan | --- | 5-Oct | 28-Sep | 5-Oct | 30-Sep |
| | 29,300 | CDQ | 1-Mar | 17-Mar | 5-Mar | 3-Mar | 15-Feb | 1-Oct | 12-Sep | --- | --- | 6-Oct |
| | | M | 12-Feb | 24-Feb | 16-Feb | 3-Feb | 24-Jan | 5-Oct | 1-Oct | --- | --- | 3-Oct |
| | | P | 9-Feb | 28-Feb | 9-Feb | 7-Feb | 25-Jan | --- | --- | 20-Sep | --- | 6-Oct |
| | | S | 21-Feb | 13-Mar | 18-Feb | 4-Feb | 25-Jan | 17-Oct | 18-Sep | 14-Sep | 18-Sep | 15-Sep |
| 70/30 | 87,500 | CDQ | --- | --- | --- | --- | --- | --- | 1-Oct | --- | --- | 16-Oct |
| | | M | --- | --- | --- | 1-Mar | 1-Mar | --- | --- | --- | --- | --- |
| | | P | --- | --- | --- | --- | 16-Feb | --- | --- | --- | --- | --- |
| | | S | --- | --- | --- | 17-Mar | 22-Mar | --- | 12-Oct | 3-Oct | 13-Oct | 5-Oct |
| | 68,100 | CDQ | --- | --- | --- | --- | --- | --- | 25-Sep | --- | --- | 13-Oct |
| | | M | --- | --- | --- | 21-Feb | 10-Feb | 11-Oct | 27-Oct | --- | --- | 22-Oct |
| | | P | --- | --- | --- | 14-Mar | 10-Feb | --- | --- | --- | --- | 26-Oct |
| | | S | --- | --- | --- | 21-Feb | 14-Feb | --- | 4-Oct | 28-Sep | 5-Oct | 30-Sep |
| | 48,700 | CDQ | --- | --- | --- | --- | 28-Feb | --- | 16-Sep | --- | --- | 8-Oct |
| | | M | 28-Mar | --- | --- | 10-Feb | 30-Jan | 7-Oct | 14-Oct | --- | --- | 13-Oct |
| | | P | 21-Feb | --- | 7-Mar | 25-Feb | 5-Feb | --- | --- | --- | --- | 13-Oct |
| | | S | --- | --- | --- | 10-Feb | 1-Feb | --- | 26-Sep | 19-Sep | 22-Sep | 19-Sep |
| | 29,300 | CDQ | 7-Mar | --- | --- | 10-Mar | 17-Feb | 15-Sep | 7-Sep | 27-Sep | --- | 30-Sep |
| | | M | 17-Feb | 3-Mar | 26-Feb | 5-Feb | 25-Jan | 30-Sep | 22-Sep | 13-Oct | --- | 13-Sep |
| | | P | 12-Feb | 3-Mar | 14-Feb | 9-Feb | 26-Jan | 28-Sep | 17-Sep | 8-Sep | --- | 23-Sep |
| | | S | 3-Mar | 21-Mar | 1-Mar | 5-Feb | 26-Jan | 7-Oct | 10-Sep | 29-Aug | 12-Sep | 11-Sep |

Table 4-4 Hypothetical forgone pollock catch, in mt, by season and sector, under Alternative 2 Chinook salmon hard cap sector allocation options for 2003.

| **2003** | | | opt1 (AFA) | | | opt2a | | | opt2d | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Seas | Cap | Sect | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 |
| A | 87,500 | CDQ | 0 | 0 | 0 | 20,158 | 7,826 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 96,403 | 77,278 | 21,454 | 22,130 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 87,500 Total | | 0 | 0 | 0 | 116,561 | 85,104 | 21,454 | 22,130 | 0 | 0 |
| | 68,100 | CDQ | 0 | 0 | 0 | 37,301 | 21,437 | 8,343 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 10,189 | 2,410 | 0 | 19 | 0 | 0 |
| | | P | 22,491 | 0 | 0 | 99,692 | 97,845 | 95,074 | 95,568 | 76,553 | 0 |
| | | S | 1,401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 68,100 Total | | 23,892 | 0 | 0 | 147,183 | 121,693 | 103,416 | 95,587 | 76,553 | 0 |
| | 48,700 | CDQ | 0 | 0 | 0 | 48,057 | 47,756 | 37,294 | 766 | 0 | 0 |
| | | M | 2,785 | 28 | 0 | 22,209 | 21,796 | 10,184 | 16,153 | 7,690 | 16 |
| | | P | 97,084 | 94,819 | 22,466 | 127,140 | 125,500 | 99,679 | 100,033 | 98,240 | 95,550 |
| | | S | 90,166 | 37,904 | 1,389 | 0 | 0 | 0 | 14,291 | 831 | 0 |
| | 48,700 Total | | 190,035 | 132,750 | 23,856 | 197,405 | 195,053 | 147,157 | 131,242 | 106,761 | 95,566 |
| | 29,300 | CDQ | 8,148 | 0 | 0 | 51,899 | 48,624 | 48,353 | 44,328 | 22,243 | 19,951 |
| | | M | 28,630 | 22,088 | 16,109 | 37,246 | 29,542 | 28,899 | 29,301 | 28,765 | 22,072 |
| | | P | 126,818 | 125,127 | 99,316 | 155,741 | 154,835 | 128,755 | 129,019 | 127,681 | 125,673 |
| | | S | 158,705 | 126,121 | 123,209 | 91,428 | 60,538 | 13,805 | 124,692 | 122,211 | 60,708 |
| | 29,300 Total | | 322,301 | 273,337 | 238,633 | 336,314 | 293,540 | 219,812 | 327,340 | 300,899 | 228,404 |
| B | 87,500 | CDQ | 0 | 0 | 0 | 0 | 0 | 2,071 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 1,158 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 87,500 Total | | 0 | 0 | 0 | 0 | 0 | 3,229 | 0 | 0 | 0 |
| | 68,100 | CDQ | 0 | 0 | 0 | 0 | 21 | 24,610 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 1,059 | 3,368 | 0 | 0 | 1,188 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 68,100 Total | | 0 | 0 | 0 | 0 | 1,080 | 27,978 | 0 | 0 | 1,188 |
| | 48,700 | CDQ | 0 | 0 | 0 | 10,863 | 24,599 | 51,807 | 0 | 0 | 0 |
| | | M | 0 | 0 | 3,205 | 2,939 | 3,366 | 4,006 | 2 | 1,187 | 3,606 |
| | | P | 0 | 0 | 0 | 0 | 0 | 339 | 0 | 0 | 0 |
| | | S | 0 | 0 | 1,715 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 48,700 Total | | 0 | 0 | 4,920 | 13,802 | 27,965 | 56,153 | 2 | 1,187 | 3,606 |
| | 29,300 | CDQ | 0 | 0 | 0 | 51,792 | 52,696 | 54,052 | 0 | 1,962 | 25,243 |
| | | M | 3,199 | 3,584 | 4,163 | 4,002 | 7,733 | 8,144 | 3,600 | 3,922 | 7,888 |
| | | P | 0 | 0 | 254 | 332 | 3,769 | 22,870 | 0 | 0 | 3,851 |
| | | S | 1,687 | 14,503 | 28,900 | 0 | 0 | 2,377 | 0 | 927 | 15,217 |
| | 29,300 Total | | 4,885 | 18,088 | 33,317 | 56,126 | 64,199 | 87,444 | 3,600 | 6,811 | 52,199 |

Table 4-5 Hypothetical forgone pollock catch, in mt, by season and sector, under Alternative 2 Chinook salmon hard cap sector allocation options for 2004.

| **2004** | | | opt1 (AFA) | | | opt2a | | | opt2d | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Seas | Cap | Sect | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 |
| A | 87,500 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 87,500 Total | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 68,100 | CDQ | 0 | 0 | 0 | 3,925 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 29,340 | 5,088 | 0 | 0 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 68,100 Total | | 0 | 0 | 0 | 33,266 | 5,088 | 0 | 0 | 0 | 0 |
| | 48,700 | CDQ | 0 | 0 | 0 | 13,464 | 5,064 | 3,917 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 5,227 | 1,698 | 0 | 352 | 0 | 0 |
| | | P | 0 | 0 | 0 | 57,292 | 55,245 | 29,318 | 29,907 | 5,688 | 0 |
| | | S | 12,967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 48,700 Total | | 12,967 | 0 | 0 | 75,983 | 62,007 | 33,235 | 30,259 | 5,688 | 0 |
| | 29,300 | CDQ | 0 | 0 | 0 | 24,655 | 24,044 | 14,268 | 4,378 | 350 | 0 |
| | | M | 11,255 | 5,016 | 0 | 26,232 | 18,684 | 11,511 | 18,339 | 11,383 | 4,989 |
| | | P | 56,891 | 54,779 | 28,713 | 128,084 | 126,560 | 100,623 | 100,940 | 57,969 | 55,461 |
| | | S | 101,177 | 66,910 | 36,923 | 14,112 | 414 | 0 | 64,926 | 14,899 | 502 |
| | 29,300 Total | | 169,322 | 126,705 | 65,636 | 193,082 | 169,701 | 126,402 | 188,584 | 84,601 | 60,952 |
| B | 87,500 | CDQ | 0 | 0 | 0 | 4,517 | 15,260 | 29,375 | 0 | 0 | 2,605 |
| | | M | 0 | 0 | 0 | 0 | 0 | 839 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 1,179 | 14,423 | 28,629 | 0 | 0 | 6,791 | 0 | 836 | 15,307 |
| | 87,500 Total | | 1,179 | 14,423 | 28,629 | 4,517 | 15,260 | 37,004 | 0 | 836 | 17,912 |
| | 68,100 | CDQ | 0 | 0 | 0 | 27,694 | 28,868 | 45,713 | 0 | 0 | 4,442 |
| | | M | 0 | 0 | 7 | 0 | 38 | 3,084 | 0 | 0 | 894 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 15,167 | 28,266 | 37,867 | 0 | 1,100 | 15,792 | 1,205 | 14,479 | 28,652 |
| | 68,100 Total | | 15,167 | 28,266 | 37,875 | 27,694 | 30,005 | 64,589 | 1,205 | 14,479 | 33,988 |
| | 48,700 | CDQ | 0 | 0 | 3,796 | 29,784 | 45,707 | 47,251 | 3,205 | 4,435 | 28,210 |
| | | M | 0 | 7 | 1,176 | 987 | 3,083 | 9,003 | 11 | 892 | 3,652 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 28,923 | 37,863 | 66,671 | 14,112 | 15,782 | 37,498 | 15,976 | 28,647 | 38,150 |
| | 48,700 Total | | 28,923 | 37,870 | 71,643 | 44,883 | 64,572 | 93,752 | 19,191 | 33,974 | 70,012 |
| | 29,300 | CDQ | 3,777 | 14,487 | 28,717 | 47,240 | 60,298 | 60,963 | 28,191 | 29,286 | 46,079 |
| | | M | 1,171 | 3,649 | 9,405 | 8,991 | 9,652 | 23,297 | 3,651 | 8,785 | 17,447 |
| | | P | 0 | 0 | 0 | 0 | 1,707 | 24,782 | 0 | 0 | 3,916 |
| | | S | 66,658 | 67,412 | 91,922 | 37,488 | 38,074 | 66,972 | 38,142 | 50,469 | 90,778 |
| | 29,300 Total | | 71,606 | 85,548 | 130,044 | 93,720 | 109,732 | 176,014 | 69,985 | 88,539 | 158,220 |

Table 4-6 Hypothetical forgone pollock catch, in mt, by season and sector, under Alternative 2 Chinook salmon hard cap sector allocation options for 2005.

| 2005 | | | opt1 (AFA) | | | opt2a | | | opt2d | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Seas | Cap | Sect | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 |
| A | 87,500 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 42,708 | 0 | 0 | 0 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 87,500 Total | | 0 | 0 | 0 | 42,708 | 0 | 0 | 0 | 0 | 0 |
| | 68,100 | CDQ | 0 | 0 | 0 | 11,604 | 2,842 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 71,056 | 44,828 | 17,785 | 18,460 | 0 | 0 |
| | | S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 68,100 Total | | 0 | 0 | 0 | 82,660 | 47,670 | 17,785 | 18,460 | 0 | 0 |
| | 48,700 | CDQ | 0 | 0 | 0 | 22,548 | 21,334 | 11,599 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 11,464 | 4,273 | 0 | 85 | 0 | 0 |
| | | P | 43,709 | 1,494 | 0 | 120,999 | 94,852 | 71,039 | 92,724 | 45,408 | 18,435 |
| | | S | 92,796 | 33,715 | 0 | 0 | 0 | 0 | 46 | 0 | 0 |
| | 48,700 Total | | 136,505 | 35,209 | 0 | 155,010 | 120,459 | 82,638 | 92,855 | 45,408 | 18,435 |
| | 29,300 | CDQ | 0 | 0 | 0 | 34,189 | 24,838 | 23,743 | 20,246 | 3,344 | 0 |
| | | M | 19,477 | 11,189 | 46 | 33,508 | 26,538 | 19,820 | 26,360 | 19,649 | 4,785 |
| | | P | 120,586 | 94,459 | 70,588 | 152,222 | 151,010 | 123,074 | 123,413 | 121,694 | 95,034 |
| | | S | 159,298 | 129,990 | 127,648 | 94,569 | 60,558 | 0 | 128,840 | 126,845 | 60,768 |
| | 29,300 Total | | 299,361 | 235,638 | 198,283 | 314,488 | 262,944 | 166,637 | 298,859 | 271,532 | 160,587 |
| B | 87,500 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 21,875 | 36,695 | 52,973 | 1,497 | 13,078 | 35,965 | 19,793 | 21,325 | 37,268 |
| | 87,500 Total | | 21,875 | 36,695 | 52,973 | 1,497 | 13,078 | 35,965 | 19,793 | 21,325 | 37,268 |
| | 68,100 | CDQ | 0 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 37,177 | 38,151 | 70,555 | 20,296 | 21,748 | 37,583 | 21,916 | 36,731 | 53,000 |
| | 68,100 Total | | 37,177 | 38,151 | 70,555 | 20,296 | 21,748 | 37,679 | 21,916 | 36,731 | 53,000 |
| | 48,700 | CDQ | 0 | 0 | 0 | 0 | 93 | 5,462 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 27,981 | 0 | 0 | 0 |
| | | S | 53,331 | 70,550 | 88,977 | 36,493 | 37,576 | 53,637 | 37,702 | 52,994 | 70,943 |
| | 48,700 Total | | 53,331 | 70,550 | 88,977 | 36,493 | 37,669 | 87,081 | 37,702 | 52,994 | 70,943 |
| | 29,300 | CDQ | 0 | 0 | 0 | 5,455 | 9,593 | 13,781 | 0 | 0 | 262 |
| | | M | 0 | 0 | 0 | 0 | 0 | 9,001 | 0 | 0 | 2,215 |
| | | P | 0 | 0 | 27,537 | 27,942 | 48,725 | 73,400 | 0 | 13,916 | 49,121 |
| | | S | 88,968 | 125,252 | 148,561 | 53,626 | 70,839 | 105,794 | 70,932 | 88,732 | 125,524 |
| | 29,300 Total | | 88,968 | 125,252 | 176,099 | 87,022 | 129,156 | 201,977 | 70,932 | 102,647 | 177,122 |

Table 4-7 Hypothetical forgone pollock catch, in mt, by season and sector, under Alternative 2 Chinook salmon hard cap sector allocation options for 2006.

| 2006 | | | opt1 (AFA) | | | opt2a | | | opt2d | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Seas | Cap | Sect | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 |
| A | 87,500 | CDQ | 0 | 0 | 0 | 9,338 | 1,128 | 0 | 0 | 0 | 0 |
| | | M | 7,656 | 2,436 | 0 | 19,404 | 9,561 | 8,216 | 9,057 | 7,936 | 2,418 |
| | | P | 696 | 0 | 0 | 75,155 | 50,555 | 8,288 | 8,658 | 6,781 | 0 |
| | | S | 163,745 | 130,857 | 93,329 | 90,223 | 538 | 0 | 95,770 | 91,687 | 11,747 |
| | 87,500 Total | | 172,097 | 133,293 | 93,329 | 194,120 | 61,783 | 16,504 | 113,485 | 106,405 | 14,165 |
| | 68,100 | CDQ | 0 | 0 | 0 | 19,866 | 10,114 | 1,528 | 0 | 0 | 0 |
| | | M | 9,519 | 8,473 | 6,903 | 27,576 | 27,083 | 19,055 | 26,806 | 9,737 | 8,429 |
| | | P | 8,857 | 7,011 | 0 | 100,767 | 76,409 | 51,445 | 51,867 | 49,730 | 7,607 |
| | | S | 168,111 | 165,659 | 131,854 | 97,110 | 93,242 | 35,663 | 163,854 | 130,948 | 93,484 |
| | 68,100 Total | | 186,487 | 181,143 | 138,757 | 245,319 | 206,848 | 107,691 | 242,527 | 190,415 | 109,520 |
| | 48,700 | CDQ | 0 | 0 | 0 | 21,190 | 20,658 | 19,860 | 0 | 0 | 0 |
| | | M | 27,352 | 26,823 | 9,512 | 28,453 | 28,101 | 27,572 | 27,903 | 27,462 | 26,801 |
| | | P | 75,747 | 51,228 | 8,843 | 130,488 | 129,038 | 100,756 | 101,061 | 76,752 | 51,852 |
| | | S | 172,477 | 170,723 | 168,093 | 166,388 | 163,660 | 97,082 | 169,432 | 167,192 | 163,831 |
| | 48,700 Total | | 275,575 | 248,774 | 186,448 | 346,520 | 341,458 | 245,270 | 298,396 | 271,406 | 242,483 |
| | 29,300 | CDQ | 1,377 | 0 | 0 | 32,319 | 31,838 | 31,116 | 20,181 | 19,487 | 9,213 |
| | | M | 37,947 | 28,350 | 27,873 | 48,257 | 38,560 | 38,127 | 38,397 | 38,037 | 28,337 |
| | | P | 130,203 | 128,708 | 100,442 | 157,797 | 133,225 | 131,916 | 132,150 | 130,966 | 129,191 |
| | | S | 213,627 | 212,549 | 210,932 | 173,179 | 171,538 | 169,077 | 211,755 | 173,663 | 171,641 |
| | 29,300 Total | | 383,154 | 369,607 | 339,247 | 411,552 | 375,160 | 370,237 | 402,484 | 362,154 | 338,382 |
| B | 87,500 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 2,369 | 16,791 | 51,273 | 0 | 0 | 15,716 | 0 | 1,574 | 31,642 |
| | 87,500 Total | | 2,369 | 16,791 | 51,273 | 0 | 0 | 15,716 | 0 | 1,574 | 31,642 |
| | 68,100 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 31,485 | 33,166 | 75,284 | 0 | 2,185 | 32,186 | 2,429 | 16,844 | 51,328 |
| | 68,100 Total | | 31,485 | 33,166 | 75,284 | 0 | 2,185 | 32,186 | 2,429 | 16,844 | 51,328 |
| | 48,700 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 52,005 | 75,273 | 102,616 | 16,494 | 32,174 | 52,630 | 32,391 | 51,317 | 100,590 |
| | 48,700 Total | | 52,005 | 75,273 | 102,616 | 16,494 | 32,174 | 52,630 | 32,391 | 51,317 | 100,590 |
| | 29,300 | CDQ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | M | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | S | 102,596 | 123,886 | 137,539 | 52,606 | 75,882 | 123,384 | 100,564 | 102,060 | 124,281 |
| | 29,300 Total | | 102,596 | 123,886 | 137,539 | 52,606 | 75,882 | 123,384 | 100,564 | 102,060 | 124,281 |

Table 4-8 Hypothetical forgone pollock catch, in mt, by season and sector, under Alternative 2 Chinook salmon hard cap sector allocation options for 2007.

| **2007** | | | opt1 (AFA) | | | opt2a | | | opt2d | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Seas | Cap | Sect | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 | 50/50 | 58/42 | 70/30 |
| A | 87,500 | CDQ | 0 | 0 | 0 | 32,259 | 31,706 | 30,877 | 7,668 | 0 | 0 |
| | | M | 20,516 | 6,362 | 0 | 35,056 | 34,383 | 20,894 | 27,895 | 20,705 | 6,334 |
| | | P | 90,321 | 70,523 | 52,285 | 122,086 | 120,514 | 118,157 | 118,578 | 91,456 | 88,815 |
| | | S | 195,946 | 165,042 | 131,609 | 100,269 | 2,042 | 0 | 133,582 | 130,281 | 2,198 |
| | 87,500 Total | | 306,783 | 241,927 | 183,894 | 289,670 | 188,645 | 169,928 | 287,723 | 242,442 | 97,346 |
| | 68,100 | CDQ | 0 | 0 | 0 | 41,022 | 40,603 | 31,950 | 19,399 | 8,493 | 0 |
| | | M | 34,351 | 21,068 | 12,063 | 35,990 | 35,465 | 34,679 | 35,170 | 34,515 | 21,038 |
| | | P | 118,803 | 91,672 | 89,075 | 148,007 | 123,040 | 121,206 | 121,533 | 119,873 | 92,230 |
| | | S | 199,131 | 197,342 | 166,208 | 164,203 | 131,538 | 21,672 | 196,025 | 165,148 | 131,734 |
| | 68,100 Total | | 352,286 | 310,081 | 267,346 | 389,222 | 330,647 | 209,506 | 372,128 | 328,029 | 245,002 |
| | 48,700 | CDQ | 8,888 | 7,725 | 0 | 41,768 | 41,469 | 41,019 | 31,548 | 30,881 | 19,389 |
| | | M | 35,751 | 35,189 | 34,346 | 45,051 | 44,648 | 35,986 | 44,421 | 35,869 | 35,166 |
| | | P | 122,536 | 121,037 | 118,788 | 184,499 | 149,054 | 148,000 | 148,188 | 123,301 | 121,521 |
| | | S | 229,763 | 228,386 | 199,118 | 197,874 | 195,884 | 164,179 | 200,095 | 198,461 | 196,009 |
| | 48,700 Total | | 396,939 | 392,337 | 352,251 | 469,193 | 431,055 | 389,184 | 424,253 | 388,512 | 372,084 |
| | 29,300 | CDQ | 31,858 | 31,241 | 19,998 | 48,575 | 42,334 | 42,064 | 41,200 | 40,809 | 32,205 |
| | | M | 45,296 | 44,933 | 44,387 | 46,054 | 45,811 | 45,448 | 45,675 | 45,372 | 44,918 |
| | | P | 184,265 | 148,894 | 147,807 | 187,474 | 186,755 | 185,677 | 185,869 | 184,894 | 183,431 |
| | | S | 233,193 | 232,364 | 231,121 | 230,315 | 229,026 | 199,836 | 231,754 | 230,695 | 229,107 |
| | 29,300 Total | | 494,612 | 457,431 | 443,314 | 512,418 | 503,927 | 473,024 | 504,499 | 501,770 | 489,660 |
| B | 87,500 | CDQ | 0 | 0 | 0 | 2,998 | 5,233 | 5,443 | 0 | 1,167 | 2,614 |
| | | M | 0 | 0 | 0 | 0 | 0 | 2,619 | 0 | 0 | 0 |
| | | P | 0 | 0 | 0 | 0 | 0 | 5,198 | 0 | 0 | 0 |
| | | S | 39,362 | 40,200 | 53,563 | 9,415 | 24,271 | 39,711 | 24,475 | 38,978 | 52,578 |
| | 87,500 Total | | 39,362 | 40,200 | 53,563 | 12,413 | 29,504 | 52,971 | 24,475 | 40,146 | 55,192 |
| | 68,100 | CDQ | 0 | 0 | 2,286 | 5,287 | 5,396 | 7,397 | 1,215 | 2,465 | 2,983 |
| | | M | 0 | 0 | 2,269 | 0 | 2,432 | 5,447 | 0 | 0 | 2,675 |
| | | P | 0 | 0 | 0 | 0 | 203 | 14,938 | 0 | 0 | 4,791 |
| | | S | 52,509 | 53,245 | 71,474 | 24,950 | 39,274 | 52,816 | 39,391 | 40,224 | 53,582 |
| | 68,100 Total | | 52,509 | 53,245 | 76,029 | 30,237 | 47,305 | 80,598 | 40,606 | 42,689 | 64,032 |
| | 48,700 | CDQ | 1,155 | 2,283 | 2,853 | 7,310 | 7,397 | 9,980 | 2,735 | 2,981 | 5,335 |
| | | M | 0 | 2,267 | 5,357 | 2,770 | 5,446 | 9,528 | 2,286 | 2,673 | 5,579 |
| | | P | 0 | 0 | 5,529 | 5,721 | 14,932 | 29,967 | 0 | 4,782 | 15,095 |
| | | S | 53,819 | 71,471 | 85,600 | 40,065 | 52,811 | 61,216 | 52,906 | 53,578 | 71,691 |
| | 48,700 Total | | 54,974 | 76,021 | 99,340 | 55,865 | 80,585 | 110,691 | 57,926 | 64,015 | 97,701 |
| | 29,300 | CDQ | 2,849 | 5,147 | 5,382 | 9,978 | 10,050 | 13,643 | 5,333 | 5,435 | 7,428 |
| | | M | 5,353 | 5,567 | 12,449 | 9,525 | 12,532 | 22,040 | 5,576 | 9,471 | 18,003 |
| | | P | 5,510 | 14,765 | 29,851 | 29,956 | 37,605 | 58,892 | 15,081 | 22,844 | 37,689 |
| | | S | 85,594 | 85,943 | 86,466 | 61,212 | 71,633 | 85,740 | 71,685 | 72,055 | 86,103 |
| | 29300 Total | | 99,307 | 111,422 | 134,148 | 110,673 | 131,820 | 180,315 | 97,676 | 109,805 | 149,222 |

Table 4-9 A-season fleetwide closure date scenarios by year reflecting when each Alternative 2 cap level would have been exceeded in each year.

| Cap scenario | | CAP | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|
| 87,500 | 1-1: 70/30 | 61,250 | | | | | 6-Mar |
| | 1-2: 58/42 | 50,750 | | | | 12-Mar | 18-Feb |
| | 1-3: 55/45 | 48,125 | | | | 4-Mar | 17-Feb |
| | 1-4: 50/50 | 43,750 | | | | 25-Feb | 16-Feb |
| 68,100 | 1-1: 70/30 | 47,670 | | | | 3-Mar | 17-Feb |
| | 1-2: 58/42 | 39,498 | | | | 22-Feb | 13-Feb |
| | 1-3: 55/45 | 37,455 | | | | 21-Feb | 12-Feb |
| | 1-4: 50/50 | 34,050 | | | | 19-Feb | 10-Feb |
| 48,700 | 1-1: 70/30 | 34,090 | | | | 19-Feb | 10-Feb |
| | 1-2: 58/42 | 28,246 | 12-Mar | | | 12-Feb | 6-Feb |
| | 1-3: 55/45 | 26,785 | 10-Mar | | 15-Mar | 12-Feb | 5-Feb |
| | 1-4: 50/50 | 24,350 | 5-Mar | | 4-Mar | 10-Feb | 3-Feb |
| 29,300 | 1-1: 70/30 | 20,510 | 22-Feb | 14-Mar | 26-Feb | 7-Feb | 31-Jan |
| | 1-2: 58/42 | 16,994 | 19-Feb | 7-Mar | 17-Feb | 6-Feb | 28-Jan |
| | 1-3: 55/45 | 16,115 | 18-Feb | 6-Mar | 15-Feb | 6-Feb | 28-Jan |
| | 1-4: 50/50 | 14,650 | 16-Feb | 2-Mar | 14-Feb | 6-Feb | 28-Jan |

Table 4-10 Hypothetical forgone pollock catch estimated from **all vessels** at the time fleetwide A-season closures were invoked under Alternative 2 on the dates provided in Table 4-9.

| Pollock | | | Sector (All), A season | | | | |
|---|---|---|---|---|---|---|---|
| Cap scenario | | CAP | 2003 | 2004 | 2005 | 2006 | 2007 |
| 87,500 | 1-1: 70/30 | 61,250 | | | | | 118,839 |
| | 1-2: 58/42 | 50,750 | | | | 73,600 | 249,878 |
| | 1-3: 55/45 | 48,125 | | | | 149,049 | 256,242 |
| | 1-4: 50/50 | 43,750 | | | | 223,068 | 266,316 |
| 68,100 | 1-1: 70/30 | 47,670 | | | | 159,612 | 256,242 |
| | 1-2: 58/42 | 39,498 | | | | 252,395 | 298,484 |
| | 1-3: 55/45 | 37,455 | | | | 262,180 | 309,889 |
| | 1-4: 50/50 | 34,050 | | | | 284,894 | 327,167 |
| 48,700 | 1-1: 70/30 | 34,090 | | | | 284,894 | 327,167 |
| | 1-2: 58/42 | 28,246 | 106,465 | | | 357,833 | 366,132 |
| | 1-3: 55/45 | 26,785 | 124,915 | | 37,483 | 357,833 | 374,767 |
| | 1-4: 50/50 | 24,350 | 162,583 | | 139,743 | 379,588 | 391,740 |
| 29,300 | 1-1: 70/30 | 20,510 | 278,458 | 66,515 | 214,138 | 410,952 | 430,075 |
| | 1-2: 58/42 | 16,994 | 306,771 | 131,587 | 295,708 | 420,195 | 460,173 |
| | 1-3: 55/45 | 16,115 | 313,744 | 140,323 | 312,428 | 420,195 | 460,173 |
| | 1-4: 50/50 | 14,650 | 328,885 | 182,337 | 323,323 | 420,195 | 460,173 |

Table 4-11 Hypothetical forgone pollock catch estimated from **at-sea processors** at the time fleetwide A-season closures were invoked under Alternative 2 on the dates provided in Table 4-9.

| Pollock Cap scenario | | CAP | At-sea processors, A season 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|
| 87,500 | 1-1: 70/30 | 61,250 | | | | | 57,380 |
| | 1-2: 58/42 | 50,750 | | | | 32,495 | 114,870 |
| | 1-3: 55/45 | 48,125 | | | | 74,155 | 117,816 |
| | 1-4: 50/50 | 43,750 | | | | 102,435 | 121,417 |
| 68,100 | 1-1: 70/30 | 47,670 | | | | 78,162 | 117,816 |
| | 1-2: 58/42 | 39,498 | | | | 114,607 | 133,134 |
| | 1-3: 55/45 | 37,455 | | | | 119,214 | 137,803 |
| | 1-4: 50/50 | 34,050 | | | | 127,007 | 145,973 |
| 48,700 | 1-1: 70/30 | 34,090 | | | | 127,007 | 145,973 |
| | 1-2: 58/42 | 28,246 | 61,622 | | | 160,555 | 163,773 |
| | 1-3: 55/45 | 26,785 | 69,744 | | 12,165 | 160,555 | 170,023 |
| | 1-4: 50/50 | 24,350 | 86,804 | | 63,350 | 168,087 | 179,879 |
| 29,300 | 1-1: 70/30 | 20,510 | 142,483 | 29,118 | 95,696 | 182,192 | 192,671 |
| | 1-2: 58/42 | 16,994 | 153,534 | 62,258 | 134,210 | 187,258 | 205,379 |
| | 1-3: 55/45 | 16,115 | 156,707 | 65,354 | 142,525 | 187,258 | 205,379 |
| | 1-4: 50/50 | 14,650 | 162,422 | 85,213 | 147,369 | 187,258 | 205,379 |

Table 4-12 Hypothetical forgone pollock catch estimated from **shorebased catcher vessels** at the time fleetwide A-season closures were invoked under Alternative 2 on the dates provided in Table 4-9.

| Pollock Cap scenario | | CAP | Inshore CV, A season 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|
| 87,500 | 1-1: 70/30 | 61,250 | | | | | 52,892 |
| | 1-2: 58/42 | 50,750 | | | | 36,681 | 113,198 |
| | 1-3: 55/45 | 48,125 | | | | 66,745 | 115,146 |
| | 1-4: 50/50 | 43,750 | | | | 105,560 | 120,188 |
| 68,100 | 1-1: 70/30 | 47,670 | | | | 72,544 | 115,146 |
| | 1-2: 58/42 | 39,498 | | | | 118,657 | 136,116 |
| | 1-3: 55/45 | 37,455 | | | | 122,460 | 142,134 |
| | 1-4: 50/50 | 34,050 | | | | 134,426 | 150,122 |
| 48,700 | 1-1: 70/30 | 34,090 | | | | 134,426 | 150,122 |
| | 1-2: 58/42 | 28,246 | 37,427 | | | 167,556 | 168,466 |
| | 1-3: 55/45 | 26,785 | 46,908 | | 24,503 | 167,556 | 169,944 |
| | 1-4: 50/50 | 24,350 | 64,618 | | 67,047 | 178,948 | 175,269 |
| 29,300 | 1-1: 70/30 | 20,510 | 114,917 | 34,006 | 102,827 | 192,424 | 196,449 |
| | 1-2: 58/42 | 16,994 | 129,926 | 61,607 | 136,775 | 196,527 | 210,593 |
| | 1-3: 55/45 | 16,115 | 133,210 | 66,453 | 143,189 | 196,527 | 210,593 |
| | 1-4: 50/50 | 14,650 | 142,168 | 84,355 | 148,367 | 196,527 | 210,593 |

Table 4-13 Hypothetical forgone pollock catch estimated from **mothership operations** at the time fleetwide A-season closures were invoked under Alternative 2 on the dates provided in Table 4-9.

| **Pollock** | | | **Mothership operations, A season** | | | | |
|---|---|---|---|---|---|---|---|
| **Cap scenario** | | CAP | **2003** | **2004** | **2005** | **2006** | **2007** |
| 87,500 | 1-1: 70/30 | 61,250 | | | | | 8,566 |
| | 1-2: 58/42 | 50,750 | | | | 4,425 | 21,811 |
| | 1-3: 55/45 | 48,125 | | | | 8,149 | 23,280 |
| | 1-4: 50/50 | 43,750 | | | | 15,074 | 24,711 |
| 68,100 | 1-1: 70/30 | 47,670 | | | | 8,906 | 23,280 |
| | 1-2: 58/42 | 39,498 | | | | 19,132 | 29,234 |
| | 1-3: 55/45 | 37,455 | | | | 20,506 | 29,952 |
| | 1-4: 50/50 | 34,050 | | | | 23,460 | 31,071 |
| 48,700 | 1-1: 70/30 | 34,090 | | | | 23,460 | 31,071 |
| | 1-2: 58/42 | 28,246 | 7,416 | | | 29,722 | 33,893 |
| | 1-3: 55/45 | 26,785 | 8,263 | | 815 | 29,722 | 34,800 |
| | 1-4: 50/50 | 24,350 | 11,161 | | 9,346 | 32,553 | 36,592 |
| 29,300 | 1-1: 70/30 | 20,510 | 21,057 | 3,391 | 15,615 | 36,336 | 40,955 |
| | 1-2: 58/42 | 16,994 | 23,311 | 7,723 | 24,724 | 36,411 | 44,201 |
| | 1-3: 55/45 | 16,115 | 23,827 | 8,516 | 26,715 | 36,411 | 44,201 |
| | 1-4: 50/50 | 14,650 | 24,295 | 12,770 | 27,587 | 36,411 | 44,201 |

Table 4-14 B-season fleetwide trigger-closure date scenarios by year reflecting when the Alternative 2 cap level would have been exceeded in each year.

| **Cap scenario** | | CAP | **2003** | **2004** | **2005** | **2006** | **2007** |
|---|---|---|---|---|---|---|---|
| 87,500 | 1-1: 70/30 | 26,250 | | 25-Oct | 13-Oct | | 13-Oct |
| | 1-2: 58/42 | 36,750 | | | 30-Oct | | 26-Oct |
| | 1-3: 55/45 | 39,375 | | | | | 28-Oct |
| | 1-4: 50/50 | 43,750 | | | | | 31-Oct |
| 68,100 | 1-1: 70/30 | 20,430 | | 12-Oct | 7-Oct | 22-Oct | 9-Oct |
| | 1-2: 58/42 | 28,602 | | 30-Oct | 19-Oct | | 16-Oct |
| | 1-3: 55/45 | 30,645 | | | 25-Oct | | 18-Oct |
| | 1-4: 50/50 | 34,050 | | | 28-Oct | | 23-Oct |
| 48,700 | 1-1: 70/30 | 14,610 | | 2-Oct | 1-Oct | 12-Oct | 30-Sep |
| | 1-2: 58/42 | 20,454 | | 12-Oct | 7-Oct | 22-Oct | 9-Oct |
| | 1-3: 55/45 | 21,915 | | 14-Oct | 9-Oct | 26-Oct | 10-Oct |
| | 1-4: 50/50 | 24,350 | | 20-Oct | 11-Oct | | 11-Oct |
| 29,300 | 1-1: 70/30 | 8,790 | 8-Oct | 14-Sep | 10-Sep | 21-Sep | 16-Sep |
| | 1-2: 58/42 | 12,306 | 14-Oct | 27-Sep | 24-Sep | 3-Oct | 23-Sep |
| | 1-3: 55/45 | 13,185 | | 1-Oct | 26-Sep | 5-Oct | 27-Sep |
| | 1-4: 50/50 | 14,650 | | 2-Oct | 1-Oct | 12-Oct | 30-Sep |

Table 4-15 Hypothetical forgone pollock catch estimated from **all vessels** at the time fleetwide B-season closures were invoked under Alternative 2 on the dates provided in Table 4-14.

| Cap scenario | | CAP | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|
| 87,500 | 1-1: 70/30 | 26,250 | | 5,380 | 22,837 | | 71,041 |
| | 1-2: 58/42 | 36,750 | | | 648 | | 21,433 |
| | 1-3: 55/45 | 39,375 | | | | | 15,070 |
| | 1-4: 50/50 | 43,750 | | | | | 2,636 |
| 68,100 | 1-1: 70/30 | 20,430 | | 20,373 | 34,894 | 20,338 | 84,320 |
| | 1-2: 58/42 | 28,602 | | 2,156 | 14,292 | | 60,036 |
| | 1-3: 55/45 | 30,645 | | | 9,693 | | 53,280 |
| | 1-4: 50/50 | 34,050 | | | 2,166 | | 31,171 |
| 48,700 | 1-1: 70/30 | 14,610 | | 39,409 | 50,710 | 57,544 | 111,799 |
| | 1-2: 58/42 | 20,454 | | 20,373 | 34,894 | 20,338 | 84,320 |
| | 1-3: 55/45 | 21,915 | | 15,792 | 32,648 | 10,138 | 80,740 |
| | 1-4: 50/50 | 24,350 | | 8,273 | 27,731 | | 77,229 |
| 29,300 | 1-1: 70/30 | 8,790 | 27,727 | 138,524 | 151,247 | 166,009 | 152,958 |
| | 1-2: 58/42 | 12,306 | 12,310 | 59,879 | 78,447 | 96,274 | 129,625 |
| | 1-3: 55/45 | 13,185 | | 41,154 | 69,545 | 87,372 | 117,657 |
| | 1-4: 50/50 | 14,650 | | 39,409 | 50,710 | 57,544 | 111,799 |

Table 4-16 Hypothetical forgone pollock catch estimated from **at-sea processors** at the time fleetwide B-season closures were invoked under Alternative 2 on the dates provided in Table 4-14.

| Pollock—at-sea processors | | B season | | | | | |
|---|---|---|---|---|---|---|---|
| Cap scenario | | CAP | 2003 | 2004 | 2005 | 2006 | 2007 |
| 87,500 | 1-1: 70/30 | 26,250 | | 0 | 0 | | 22,708 |
| | 1-2: 58/42 | 36,750 | | | 0 | | 6,776 |
| | 1-3: 55/45 | 39,375 | | | | | 4,176 |
| | 1-4: 50/50 | 43,750 | | | | | 397 |
| 68,100 | 1-1: 70/30 | 20,430 | | 5 | 0 | 998 | 26,445 |
| | 1-2: 58/42 | 28,602 | | 0 | 0 | | 19,651 |
| | 1-3: 55/45 | 30,645 | | | 0 | | 17,790 |
| | 1-4: 50/50 | 34,050 | | | 0 | | 10,108 |
| 48,700 | 1-1: 70/30 | 14,610 | | 2,685 | 3,184 | 12,771 | 37,642 |
| | 1-2: 58/42 | 20,454 | | 5 | 0 | 998 | 26,445 |
| | 1-3: 55/45 | 21,915 | | 0 | 0 | 0 | 25,335 |
| | 1-4: 50/50 | 24,350 | | 0 | 0 | | 24,309 |
| 29,300 | 1-1: 70/30 | 8,790 | 1,716 | 42,951 | 48,891 | 55,640 | 54,182 |
| | 1-2: 58/42 | 12,306 | 0 | 11,508 | 14,384 | 29,896 | 44,738 |
| | 1-3: 55/45 | 13,185 | | 3,183 | 11,823 | 25,413 | 39,812 |
| | 1-4: 50/50 | 14,650 | | 2,685 | 3,184 | 12,771 | 37,642 |

Table 4-17 Hypothetical forgone pollock catch estimated from **shorebased catcher vessels** at the time fleetwide B-season closures were invoked under Alternative 2 on the dates provided in Table 4-14.

| **Pollock-shorebased catcher vessels** | | | | **B season** | | | |
|---|---|---|---|---|---|---|---|
| **Cap scenario** | | CAP | **2003** | **2004** | **2005** | **2006** | **2007** |
| 87,500 | 1-1: 70/30 | 26,250 | | 3,140 | 19,260 | | 37,642 |
| | 1-2: 58/42 | 36,750 | | | 648 | | 10,228 |
| | 1-3: 55/45 | 39,375 | | | | | 7,561 |
| | 1-4: 50/50 | 43,750 | | | | | 1,212 |
| 68,100 | 1-1: 70/30 | 20,430 | | 17,002 | 28,876 | 15,175 | 45,523 |
| | 1-2: 58/42 | 28,602 | | 1,004 | 13,065 | | 30,396 |
| | 1-3: 55/45 | 30,645 | | | 9,693 | | 26,503 |
| | 1-4: 50/50 | 34,050 | | | 2,166 | | 15,688 |
| 48,700 | 1-1: 70/30 | 14,610 | | 32,309 | 41,402 | 37,130 | 57,734 |
| | 1-2: 58/42 | 20,454 | | 17,002 | 28,876 | 15,175 | 45,523 |
| | 1-3: 55/45 | 21,915 | | 12,605 | 27,273 | 7,775 | 43,833 |
| | 1-4: 50/50 | 24,350 | | 5,440 | 23,340 | | 41,790 |
| 29,300 | 1-1: 70/30 | 8,790 | 22,300 | 69,594 | 86,112 | 92,492 | 75,141 |
| | 1-2: 58/42 | 12,306 | 10,172 | 36,317 | 56,078 | 55,094 | 64,100 |
| | 1-3: 55/45 | 13,185 | | 32,662 | 50,354 | 51,472 | 60,425 |
| | 1-4: 50/50 | 14,650 | | 32,309 | 41,402 | 37,130 | 57,734 |

Table 4-18 Hypothetical forgone pollock catch estimated from **mothership operations** the time fleetwide B-season closures were invoked under Alternative 2 on the dates provided in Table 4-14.

| **Pollock—mothership operations** | | | | **B season** | | | |
|---|---|---|---|---|---|---|---|
| **Cap scenario** | | CAP | **2003** | **2004** | **2005** | **2006** | **2007** |
| 87,500 | 1-1: 70/30 | 26,250 | | 2,240 | 3,577 | | 10,691 |
| | 1-2: 58/42 | 36,750 | | | 0 | | 4,428 |
| | 1-3: 55/45 | 39,375 | | | | | 3,333 |
| | 1-4: 50/50 | 43,750 | | | | | 1,027 |
| 68,100 | 1-1: 70/30 | 20,430 | | 3,366 | 6,018 | 4,165 | 12,352 |
| | 1-2: 58/42 | 28,602 | | 1,152 | 1,227 | | 9,989 |
| | 1-3: 55/45 | 30,645 | | | 0 | | 8,988 |
| | 1-4: 50/50 | 34,050 | | | 0 | | 5,375 |
| 48,700 | 1-1: 70/30 | 14,610 | | 4,415 | 6,125 | 7,644 | 16,422 |
| | 1-2: 58/42 | 20,454 | | 3,366 | 6,018 | 4,165 | 12,352 |
| | 1-3: 55/45 | 21,915 | | 3,187 | 5,374 | 2,364 | 11,571 |
| | 1-4: 50/50 | 24,350 | | 2,833 | 4,392 | | 11,130 |
| 29,300 | 1-1: 70/30 | 8,790 | 3,711 | 25,979 | 16,244 | 17,877 | 23,635 |
| | 1-2: 58/42 | 12,306 | 2,138 | 12,054 | 7,985 | 11,285 | 20,786 |
| | 1-3: 55/45 | 13,185 | | 5,308 | 7,368 | 10,488 | 17,420 |
| | 1-4: 50/50 | 14,650 | | 4,415 | 6,125 | 7,644 | 16,422 |

Table 4-19 Alternative 4 dates of closures for different scenarios by sector between A and B seasons and assuming no transferability in the A season, 'No', or perfect transferability in the A season, 'Yes' (in all cases perfect B-season transferability was assumed).

| Alt 4 Scenario | A-season Transfer-Ability | A-Season Year | CDQ | M | P | S | A-B Rollover | B-Season CDQ | M | P | S |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No | 2003 | -- | -- | -- | -- | 80% | -- | -- | -- | -- |
| | | 2004 | -- | -- | -- | -- | | -- | -- | -- | -- |
| | | 2005 | -- | -- | -- | -- | | -- | -- | -- | 29-Oct |
| | | 2006 | -- | 23-Feb | 18-Mar | 19-Feb | | -- | -- | -- | 22-Oct |
| | | 2007 | -- | 19-Feb | 15-Feb | 15-Feb | | 15-Oct | 25-Oct | 10-Oct | 7-Oct |
| | Yes | 2003 | -- | -- | -- | -- | | -- | -- | -- | -- |
| | | 2004 | -- | -- | -- | -- | | -- | -- | -- | -- |
| | | 2005 | -- | -- | -- | -- | | -- | -- | -- | 29-Oct |
| | | 2006 | -- | 27-Feb | -- | 20-Feb | | -- | -- | -- | 22-Oct |
| | | 2007 | -- | 22-Feb | 15-Feb | 15-Feb | | 15-Oct | 25-Oct | 10-Oct | 7-Oct |
| 2 | No | 2003 | -- | -- | 8-Mar | -- | | -- | -- | -- | -- |
| | | 2004 | -- | -- | -- | -- | | -- | -- | -- | 11-Oct |
| | | 2005 | -- | -- | -- | -- | | -- | -- | 25-Sep | 5-Oct |
| | | 2006 | -- | 18-Feb | 5-Mar | 9-Feb | | -- | -- | -- | 10-Oct |
| | | 2007 | 7-Mar | 2-Feb | 6-Feb | 5-Feb | | 7-Oct | 17-Oct | 29-Sep | 26-Sep |
| | Yes | 2003 | -- | -- | 21-Mar | -- | | -- | 16-Oct | -- | -- |
| | | 2004 | -- | -- | -- | -- | | -- | -- | -- | 11-Oct |
| | | 2005 | -- | -- | -- | -- | | -- | -- | 25-Sep | 5-Oct |
| | | 2006 | -- | 18-Feb | 9-Mar | 10-Feb | | -- | -- | -- | 10-Oct |
| | | 2007 | 7-Mar | 2-Feb | 6-Feb | 5-Feb | | 7-Oct | 17-Oct | 29-Sep | 26-Sep |

Table 4-20 Alternative 5 dates of closures for the 60,000 Chinook salmon cap between A and B seasons, with and without A-season transferability.

| Transferability | A-Season Year | CDQ | M | P | S | B-Season CDQ | M | P | S |
|---|---|---|---|---|---|---|---|---|---|
| No | 2003 | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2004 | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2005 | --- | --- | --- | --- | --- | --- | --- | 26-Oct |
| | 2006 | --- | 21-Feb | 13-Mar | 15-Feb | --- | --- | --- | 19-Oct |
| | 2007 | --- | 12-Feb | 12-Feb | 11-Feb | 8-Oct | 21-Oct | 6-Oct | 5-Oct |
| Yes | 2003 | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2004 | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2005 | --- | --- | --- | --- | --- | --- | --- | 26-Oct |
| | 2006 | --- | 21-Feb | 14-Mar | 17-Feb | --- | --- | --- | 19-Oct |
| | 2007 | --- | 13-Feb | 12-Feb | 11-Feb | 8-Oct | 21-Oct | 6-Oct | 5-Oct |

Table 4-21 Hypothetical forgone pollock by sector and scenario had dates presented in Table 4-19 been invoked as closures by sector with A-B split equal to 70:30 and allowing **80%** rollover from A to B season under the two Alternative 4 annual scenarios (AS), 2003-2007 and summed over these years (last 4 rows)**.**

| Alt 4 AS | A-season Transfer-ability | A-Season | | | | | | B-Season | | | | | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year | CDQ | M | P | S | **A-Total** | CDQ | M | P | S | **B-Total** | **Total** |
| 1 | No | 2003 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 648 | **648** | **648** |
| | | 2006 | 0 | 8,212 | 6,821 | 129,068 | **144,102** | 0 | 0 | 0 | 12,604 | **12,604** | **156,705** |
| | | 2007 | 0 | 15,337 | 89,484 | 120,188 | **225,009** | 4,415 | 2,992 | 23,408 | 47,537 | **78,351** | **303,361** |
| | Yes | 2003 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 648 | **648** | **648** |
| | | 2006 | 0 | 4,299 | 0 | 122,460 | **126,759** | 0 | 0 | 0 | 12,604 | **12,604** | **139,362** |
| | | 2007 | 0 | 12,168 | 89,484 | 120,188 | **221,840** | 4,415 | 2,992 | 23,408 | 47,537 | **78,351** | **300,191** |
| 2 | No | 2003 | 0 | 0 | 61,233 | 0 | **61,233** | 0 | 0 | 0 | 0 | **0** | **61,233** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 17,002 | **17,002** | **17,002** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 9,776 | 30,374 | **40,150** | **40,150** |
| | | 2006 | 0 | 15,429 | 50,888 | 178,948 | **245,266** | 0 | 0 | 0 | 38,958 | **38,958** | **284,224** |
| | | 2007 | 10,281 | 29,262 | 119,925 | 168,466 | **327,935** | 6,057 | 5,958 | 34,921 | 60,425 | **107,362** | **435,296** |
| | Yes | 2003 | 0 | 0 | 23,677 | 0 | **23,677** | 0 | 1,447 | 0 | 0 | **1,447** | **25,124** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 17,002 | **17,002** | **17,002** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 9,776 | 30,374 | **40,150** | **40,150** |
| | | 2006 | 0 | 15,429 | 33,051 | 170,773 | **219,254** | 0 | 0 | 0 | 38,958 | **38,958** | **258,212** |
| | | 2007 | 10,281 | 29,262 | 119,925 | 168,466 | **327,935** | 6,057 | 5,958 | 34,921 | 60,425 | **107,362** | **435,296** |
| 1 | No | Total | 0 | 23,549 | 96,305 | 249,256 | **369,111** | 4,415 | 2,992 | 23,408 | 60,789 | **91,603** | **460,714** |
| | Yes | Total | 0 | 16,467 | 89,484 | 242,648 | **348,599** | 4,415 | 2,992 | 23,408 | 60,789 | **91,603** | **440,201** |
| 2 | No | Total | 10,281 | 44,691 | 232,046 | 347,414 | **634,434** | 6,057 | 5,958 | 44,697 | 146,759 | **203,472** | **837,905** |
| | Yes | Total | 10,281 | 44,691 | 176,653 | 339,239 | **570,866** | 6,057 | 7,405 | 44,697 | 146,759 | **204,919** | **775,784** |

Table 4-22 Hypothetical forgone pollock by sector and scenario had dates presented in Table 4-19 been invoked as closures by sector with A-B split equal to 70:30 and allowing 0% and 100% rollover from A to B season under the two Alternative 4 annual scenarios (AS), 2003-2007.

| Alt 4 AS | A-season Transfer-Ability | A-Season Year | CDQ | M | P | S | A **total** | A-B Roll over | B-Season CDQ | M | P | S | B **Total** | Annual **Total** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No | 2003 | 0 | 0 | 0 | 0 | **0** | 0% | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 15,995 | 1,152 | 0 | 17,002 | **34,148** | **34,148** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 28,876 | **28,876** | **28,876** |
| | | 2006 | 0 | 8,212 | 6,821 | 129,068 | **144,102** | | 0 | 0 | 0 | 15,175 | **15,175** | **159,277** |
| | | 2007 | 0 | 15,337 | 89,484 | 120,188 | **225,009** | | 4,723 | 2,992 | 25,391 | 47,537 | **80,643** | **305,652** |
| | Yes | 2003 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 15,995 | 1,152 | 0 | 17,002 | **34,148** | **34,148** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 28,876 | **28,876** | **28,876** |
| | | 2006 | 0 | 4,299 | 0 | 122,460 | **126,759** | | 0 | 0 | 0 | 15,175 | **15,175** | **141,934** |
| | | 2007 | 0 | 12,168 | 89,484 | 120,188 | **221,840** | | 4,723 | 2,992 | 25,391 | 47,537 | **80,643** | **302,483** |
| 2 | No | 2003 | 0 | 0 | 61,233 | 0 | **61,233** | | 0 | 1,447 | 0 | 0 | **1,447** | **62,680** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 37,452 | 3,187 | 1,008 | 30,186 | **71,833** | **71,833** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 37,999 | 39,247 | **77,246** | **77,246** |
| | | 2006 | 0 | 15,429 | 50,888 | 178,948 | **245,266** | | 0 | 0 | 0 | 38,958 | **38,958** | **284,224** |
| | | 2007 | 10,281 | 29,262 | 119,925 | 168,466 | **327,935** | | 6,057 | 6,164 | 34,921 | 60,425 | **107,567** | **435,502** |
| | Yes | 2003 | 0 | 0 | 23,677 | 0 | **23,677** | | 0 | 1,447 | 0 | 0 | **1,447** | **25,124** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 37,452 | 3,187 | 1,008 | 30,186 | **71,833** | **71,833** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 37,999 | 39,247 | **77,246** | **77,246** |
| | | 2006 | 0 | 15,429 | 33,051 | 170,773 | **219,254** | | 0 | 0 | 0 | 38,958 | **38,958** | **258,212** |
| | | 2007 | 10,281 | 29,262 | 119,925 | 168,466 | **327,935** | | 6,057 | 6,164 | 34,921 | 60,425 | **107,567** | **435,502** |
| 1 | No | 2003 | 0 | 0 | 0 | 0 | **0** | 100% | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2006 | 0 | 8,212 | 6,821 | 129,068 | **144,102** | | 0 | 0 | 0 | 11,184 | **11,184** | **155,286** |
| | | 2007 | 0 | 15,337 | 89,484 | 120,188 | **225,009** | | 4,415 | 2,992 | 22,534 | 47,537 | **77,477** | **302,487** |
| | Yes | 2003 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 0 | **0** | **0** |
| | | 2006 | 0 | 4,299 | 0 | 122,460 | **126,759** | | 0 | 0 | 0 | 11,184 | **11,184** | **137,943** |
| | | 2007 | 0 | 12,168 | 89,484 | 120,188 | **221,840** | | 4,415 | 2,992 | 22,534 | 47,537 | **77,477** | **299,317** |
| 2 | No | 2003 | 0 | 0 | 61,233 | 0 | **61,233** | | 0 | 0 | 0 | 0 | **0** | **61,233** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 12,605 | **12,605** | **12,605** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 2,936 | 28,876 | **31,812** | **31,812** |
| | | 2006 | 0 | 15,429 | 50,888 | 178,948 | **245,266** | | 0 | 0 | 0 | 37,130 | **37,130** | **282,395** |
| | | 2007 | 10,281 | 29,262 | 119,925 | 168,466 | **327,935** | | 6,057 | 5,958 | 34,921 | 60,425 | **107,362** | **435,296** |
| | Yes | 2003 | 0 | 0 | 23,677 | 0 | **23,677** | | 0 | 0 | 0 | 0 | **0** | **23,677** |
| | | 2004 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 0 | 12,605 | **12,605** | **12,605** |
| | | 2005 | 0 | 0 | 0 | 0 | **0** | | 0 | 0 | 2,936 | 28,876 | **31,812** | **31,812** |
| | | 2006 | 0 | 15,429 | 33,051 | 170,773 | **219,254** | | 0 | 0 | 0 | 37,130 | **37,130** | **256,383** |
| | | 2007 | 10,281 | 29,262 | 119,925 | 168,466 | **327,935** | | 6,057 | 5,958 | 34,921 | 60,425 | **107,362** | **435,296** |

Table 4-23 Hypothetical forgone pollock by sector for Alternative 5 given dates presented in Table 4-19 been invoked as closures by sector with A-B split equal to 70:30 and allowing rollover from A to B season and transferability.

| | A-season | | | | | B-season | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **CDQ** | **M** | **P** | **S** | **A-total** | **CDQ** | **M** | **P** | **S** | **B-total** | **Annual** |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,672 | 3,672 | 3,672 |
| 2006 | 0 | 11,101 | 12,652 | 137,026 | 160,779 | 0 | 0 | 0 | 19,752 | 19,752 | 180,531 |
| 2007 | 0 | 20,864 | 99,698 | 142,134 | 262,696 | 5,363 | 4,152 | 27,113 | 51,737 | 88,365 | 351,062 |
| **Total** | **0** | **31,965** | **112,350** | **279,160** | **423,475** | **5,363** | **4,152** | **27,113** | **75,161** | **111,789** | **223,579** |

Table 4-24 2003-2007 sum of additional forgone pollock relative to 80% rollover amounts presented in Table 4-21. E.g., for Alt 4 AS1 with no transferability and no rollover (first row) the total estimate of forgone pollock catch over they years 2003-2007 was 67,239 mt more than the scenario with 80% rollover whereas with the 100% rollover option, there would have been 2,941 mt *less* forgone pollock (compared to the 80% rollover option).

| AS | Transferability | Rollover | Total | CDQ | M | P | S |
|---|---|---|---|---|---|---|---|
| 1 | No | 0% | 67,239 | 16,303 | 1,152 | 1,983 | 47,801 |
| | Yes | 0% | 67,240 | 16,303 | 1,152 | 1,983 | 47,801 |
| 2 | No | 0% | 93,580 | 37,452 | 4,840 | 29,231 | 22,057 |
| | Yes | 0% | 92,133 | 37,452 | 3,393 | 29,231 | 22,057 |
| 1 | No | 100% | -2,941 | 0 | 0 | -874 | -2,068 |
| | Yes | 100% | -2,941 | 0 | 0 | -874 | -2,068 |
| 2 | No | 100% | -14,564 | 0 | 0 | -6,840 | -7,723 |
| | Yes | 100% | -16,011 | 0 | -1,447 | -6,840 | -7,723 |

Table 4-25 Sample sizes for EBS pollock age data broken out by season and region.

| | Jan-May | June-Aug | | | Sept-Dec | | | |
|---|---|---|---|---|---|---|---|---|
| Age | A season | E | W | Subtotal | E | W | Subtotal | Total |
| 3 | 144 | 263 | 210 | 473 | 216 | 136 | 352 | 969 |
| 4 | 570 | 325 | 814 | 1,139 | 228 | 375 | 603 | 2,312 |
| 5 | 1,332 | 463 | 977 | 1,440 | 330 | 271 | 601 | 3,373 |
| 6 | 1,427 | 432 | 596 | 1,028 | 338 | 132 | 470 | 2,925 |
| 7 | 997 | 257 | 286 | 543 | 226 | 67 | 293 | 1,833 |
| 8 | 718 | 183 | 199 | 382 | 164 | 35 | 199 | 1,299 |
| 9 | 391 | 114 | 67 | 181 | 67 | 16 | 83 | 655 |
| 10+ | 574 | 132 | 73 | 205 | 126 | 12 | 138 | 917 |

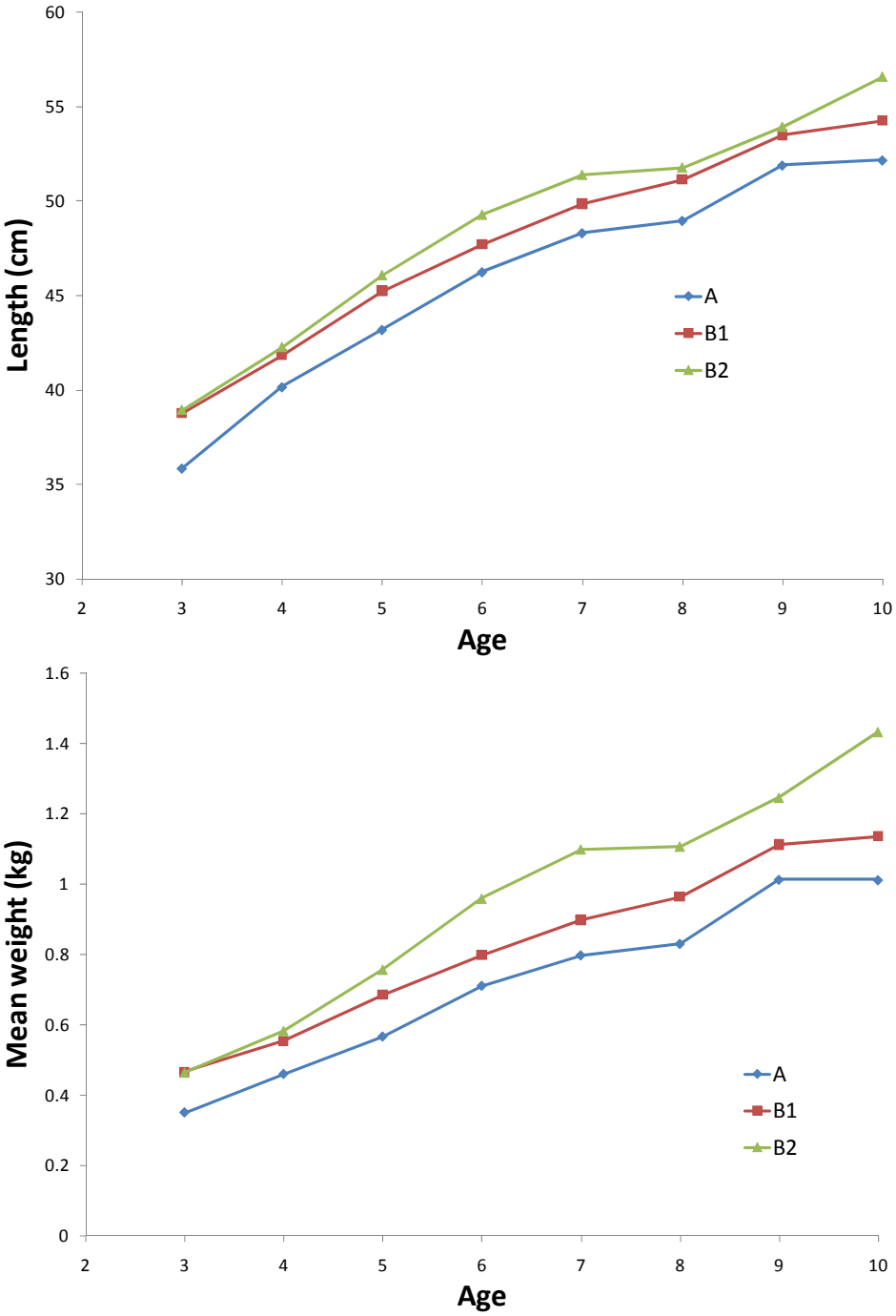


Fig. 4-5 Mean length (top panel) and mean weight (bottom) at age for EBS pollock based on fishery observer data from 2000-2007 broken out by A-season (Jan 20 – May 31) and two B-season time frames: June 1 – August 31 (B1) and September 1 – December 31

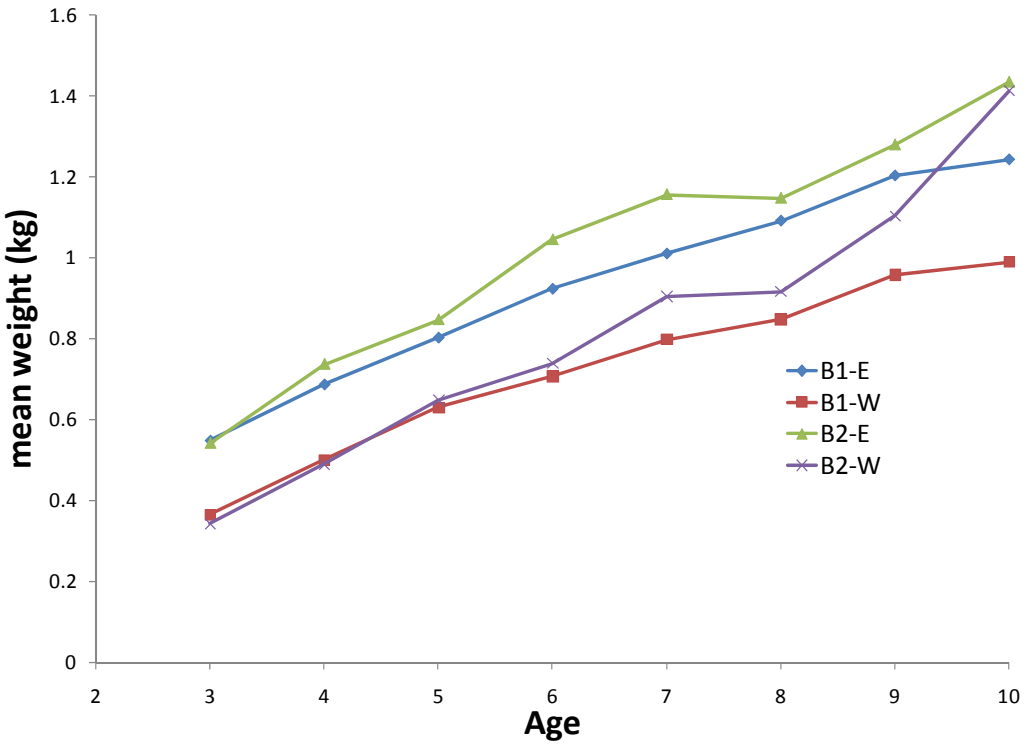


Fig. 4-6 Mean weight at age for EBS pollock based on fishery observer data from 2000-2007 broken out by two B-season time frames: June 1 – August 31 (B1) and September 1 – December 31 and geographically by east of 170°W (E) and west of 170°W (W)

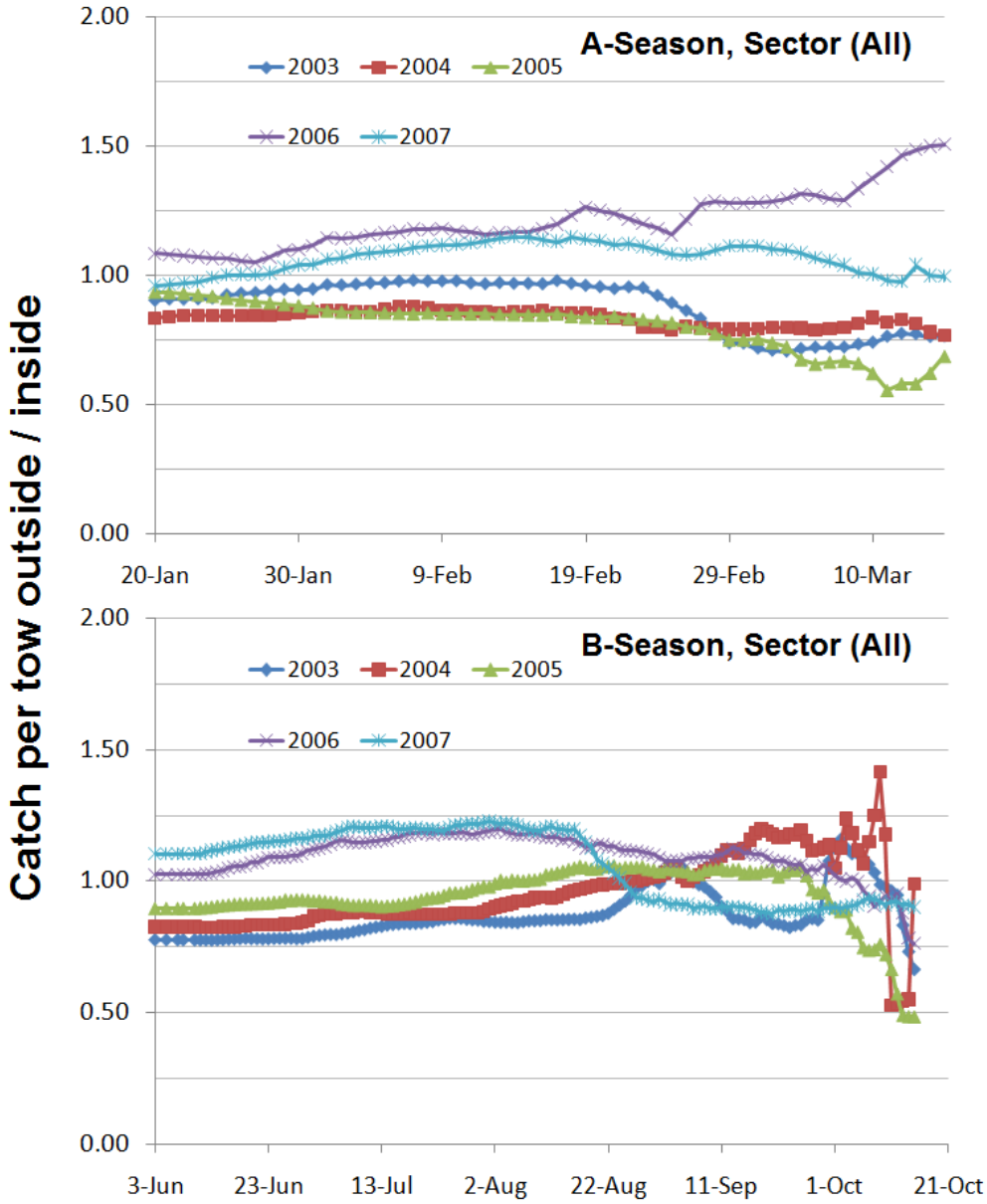


Fig. 4-7 Relative catch rates of pollock for all vessels combined by tow of outside area relative to inside trigger closure region for A-season (top) and B-season (bottom), 2003-2007. A value of one for a given date indicates that the means for catch rates outside and inside are the same for that date through to the end of the season

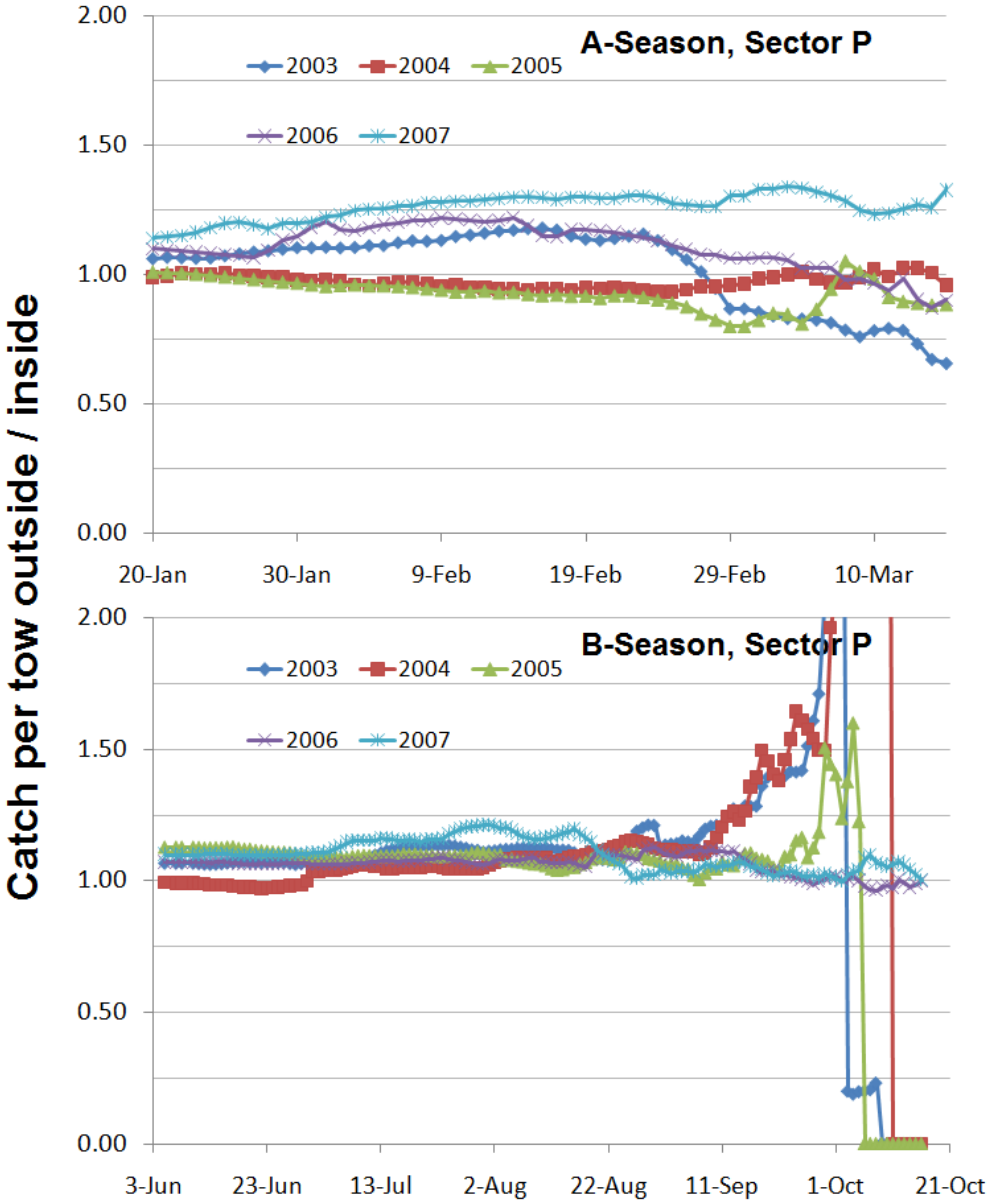


Fig. 4-8 Relative catch rates of pollock for at-sea processors by tow of outside area relative to inside trigger closure region for A-season (top) and B-season (bottom), 2003-2007. A value of one for a given date indicates that the means for catch rates outside and inside are the same for that date through to the end of the season..

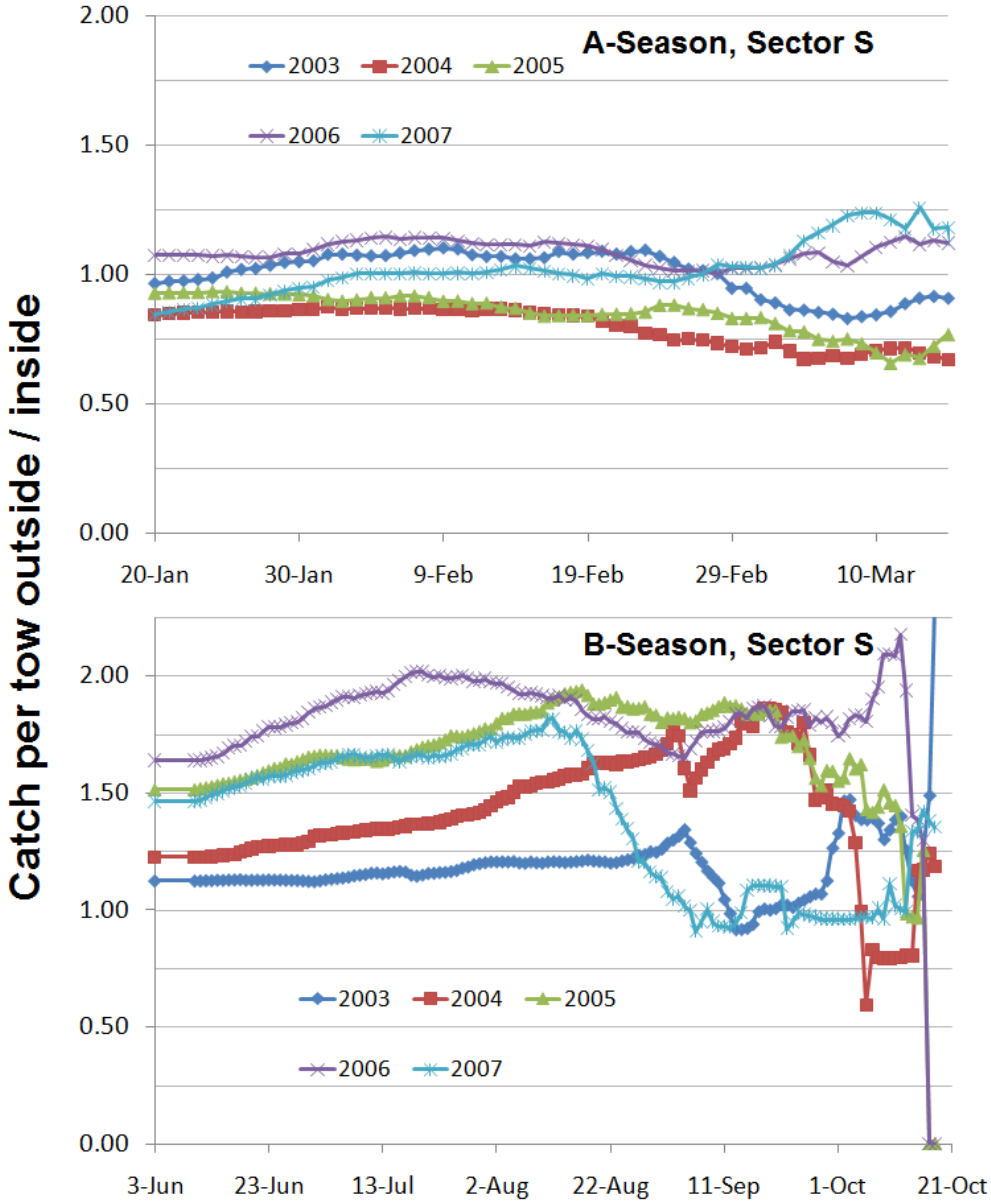


Fig. 4-9 Relative catch rates of pollock for shorebased catcher vessels by tow of outside area relative to inside trigger closure region for A-season (top) and B-season (bottom), 2003-2007. A value of one for a given date indicates that the means for catch rates outside and inside are the same for that date through to the end of the season.

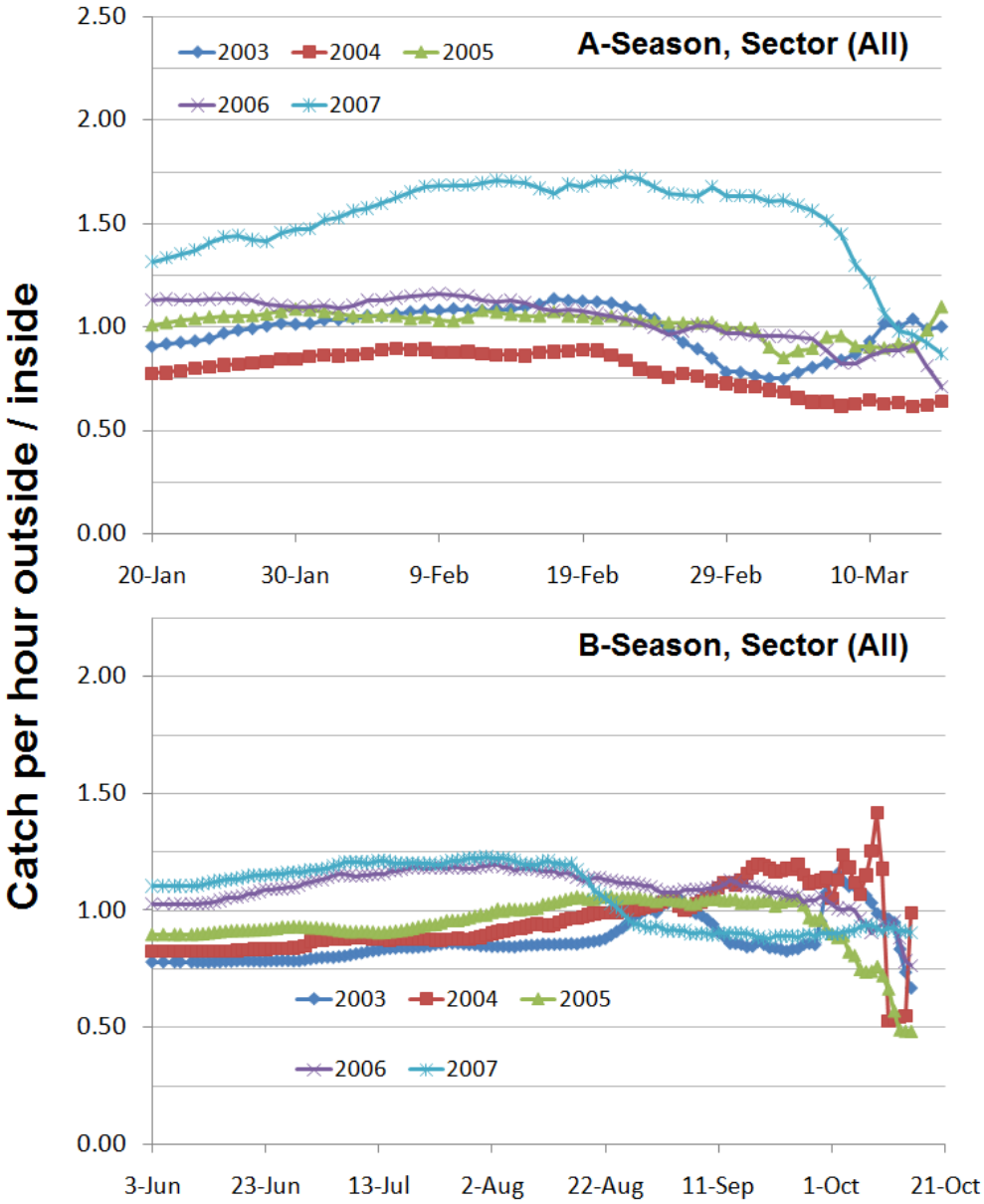


Fig. 4-10 Relative catch rates of pollock for all vessels combined by hour of outside area relative to inside trigger closure region for A-season (top) and B-season (bottom), 2003-2007. A value of one for a given date indicates that the means for catch rates outside and inside are the same for that date through to the end of the season.

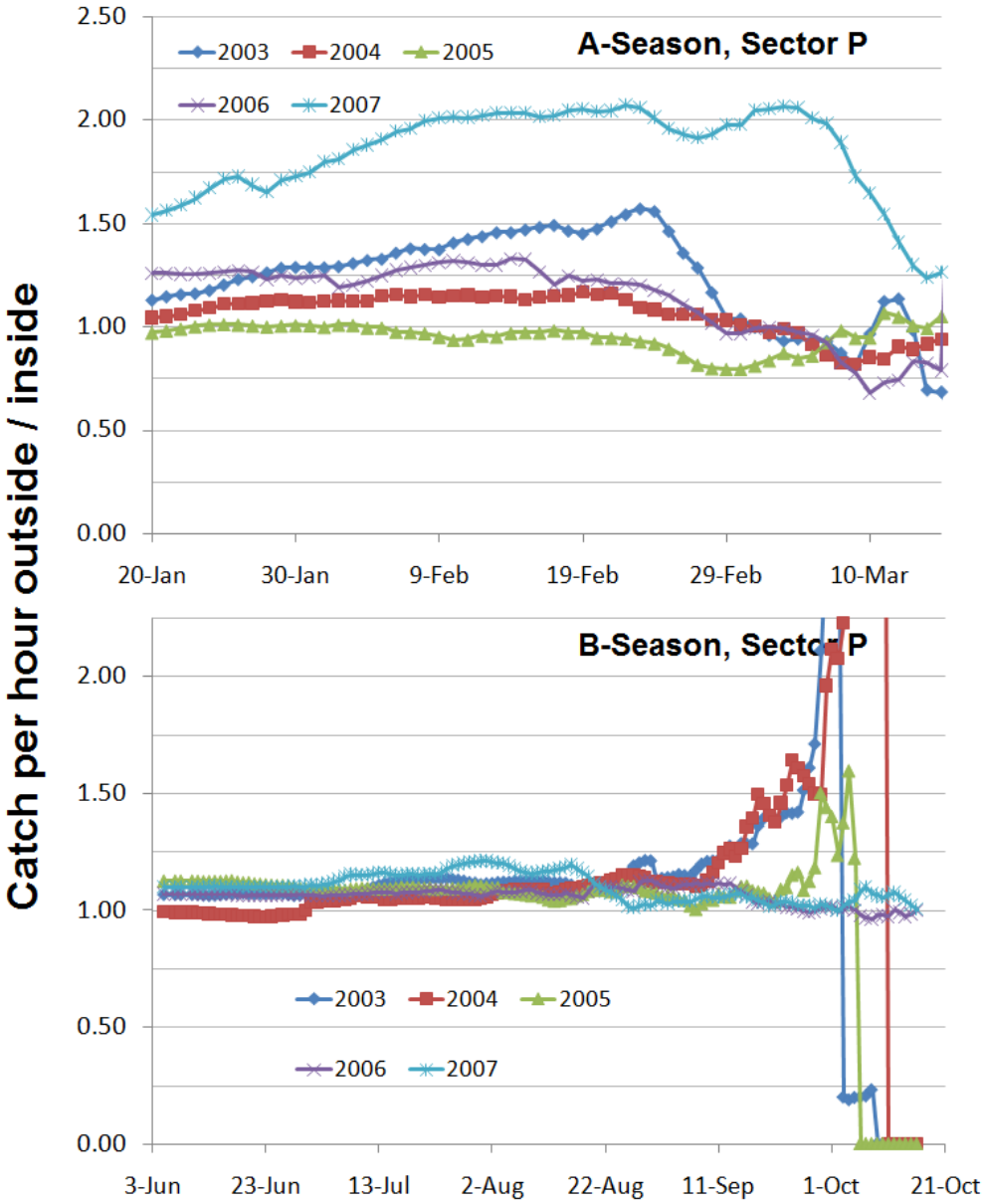


Fig. 4-11 Relative catch rates of pollock for at-sea processors by hour of outside area relative to inside trigger closure region for A-season (top) and B-season (bottom), 2003-2007. A value of one for a given date indicates that the means for catch rates outside and inside are the same for that date through to the end of the season.

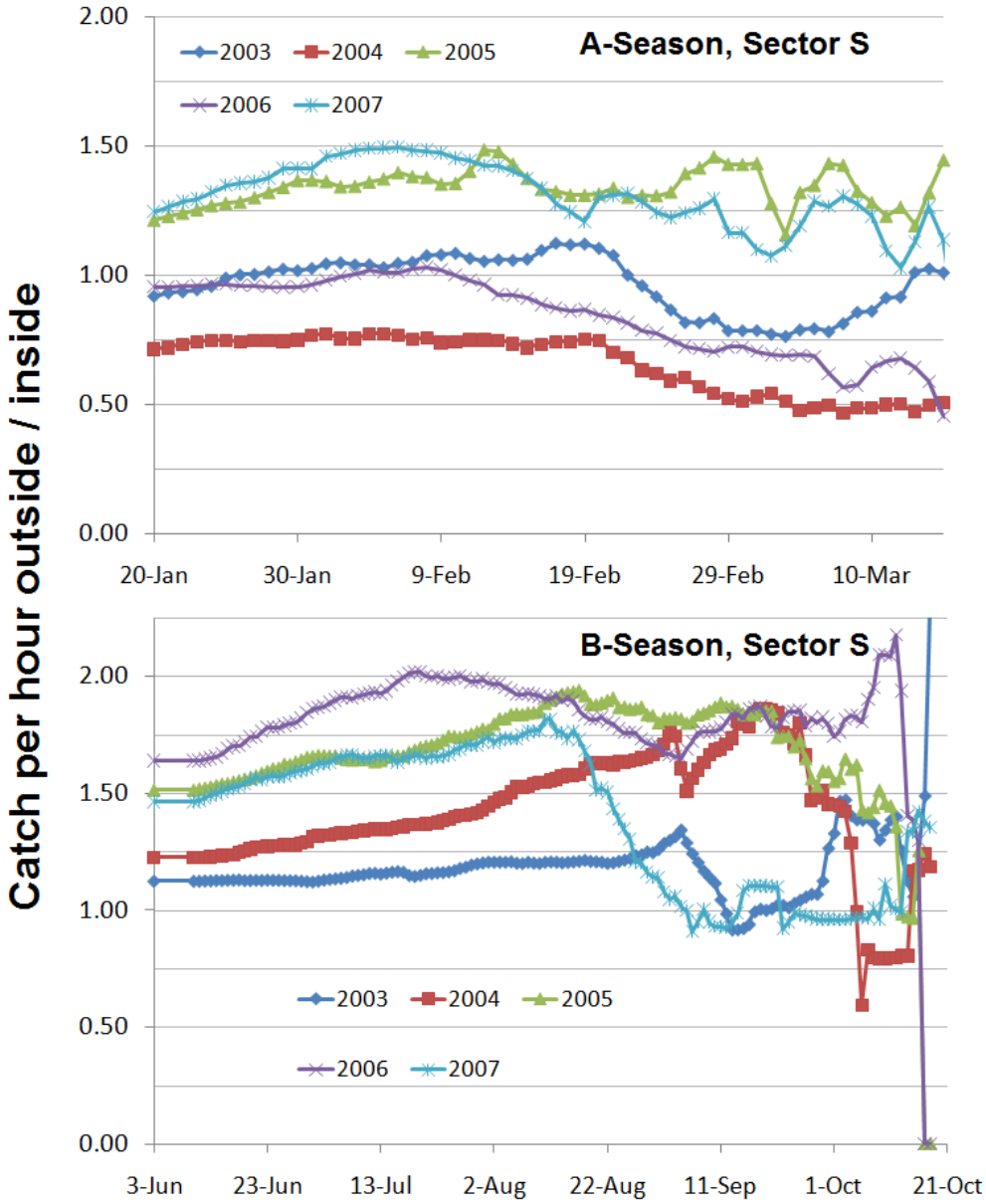


Fig. 4-12 Relative catch rates of pollock for shorebased catcher vessels by hour of outside area relative to inside trigger closure region for A-season (top) and B-season (bottom), 2003-2007. A value of one for a given date indicates that the means for catch rates outside and inside are the same for that date through to the end of the season.

## 4.4 Consideration of future actions

CEQ regulations require that the analysis of environmental consequences include a discussion of the action's impacts in the context of all other activities (human and natural) that are occurring in the affected environment and impacting the resources being affected by the proposed action and alternatives. This cumulative impact discussion should include incremental impacts of the action when added to past, present, and reasonably foreseeable future actions. Past and present actions affecting the pollock resource have been incorporated into the impacts analysis in this Chapter. Section 3.4 provides a detailed discussion of reasonably foreseeable future actions that may affect the Bering Sea pollock fishery, the

Chinook salmon caught as bycatch in that fishery, and the impacts of salmon bycatch on other resource components analyzed in the EIS.

### 4.4.1 Ecosystem-sensitive management

*Measures to minimize chum salmon bycatch*

The reasonable foreseeable future actions that will most impact the pollock fisheries and pollock stocks are changes to the management of the fisheries due to increasing protection of ESA-listed and other non-target species. The Council is considering action on management measure to minimize chum salmon bycatch in the pollock fishery. A suite of alternative management measures was proposed in April 2008, and a discussion paper was presented to the Council in October 2008. In December 2008, the Council developed a range of alternatives for analysis. Because any revised chum salmon bycatch measures will also regulate the pollock fishery, there will be a synergistic interaction between the alternatives proposed in this EIS and those considered under the chum salmon action. Analysis has not yet begun on the chum salmon action, but will be underway before this EIS is finalized, and a further discussion of the impact interactions will be included at that time.

*Adjusting protections for Steller sea lions*

The Council and NMFS may develop additional Steller sea lion protection measures to reduce the pollock fisheries interaction with Steller sea lions. As discussed in section 3.4, NMFS is currently developing a biological opinion on the status quo groundfish fisheries in the BSAI and GOA which is expected to be available in late 2009. Depending on the results of that biological opinion, the Council and NMFS may decide to change the management of the pollock fleet. Additionally, the potential change in listing for the ice seals and northern fur seals could result in management changes. As with new chum salmon measures, analysis of any new management measures for the pollock fleet would consider the impacts of adding those new measures to the existing suite of management measure for the pollock fleet.

*Changes to fishery management based on ongoing research and understanding of ecosystem interactions and the effects of climate change*

Pollock stocks may also be affected by changing climate conditions. Pollock distribution has been shown to be affected by bottom temperatures, with densities occurring in areas where the bottom temperatures are greater than zero (Ianelli et al., 2008). A study is currently underway linking temperature and salmon bycatch rates, and preliminary evidence indicates a relationship (Ianelli et al. 2009). At this time, it is not possible to forecast in what way changing climate conditions are likely to affect pollock stocks.

### 4.4.2 Traditional management tools

*Development of the salmon excluder device*

The development and deployment of the salmon excluder devise may reduce Chinook salmon bycatch and improve the fleets ability to harvest the pollock TAC under a hard cap. The salmon excluder is still being tested in pollock fisheries, and is not yet in wide-scale use, however many of the early design flaws have been corrected at this stage.

*Authorization of the pollock fishery in future years*

Future harvest specifications will primarily affect fishing mortality as the other significance criteria for pollock (temporal and spatial harvest, prey availability, and habitat suitability) are primarily controlled through regulations in 50 CFR part 679. The setting of harvest levels each year is controlled to ensure the stock can produced MSY on a continuing basis and to prevent overfishing. Each year's setting of harvest specifications include the consideration of past harvests and future harvests based on available biomass

estimates. In-season managers close fisheries to directed fishing as fishermen approach TACs, treat species whose TACs have been taken as prohibited species, and introduce fishing restrictions, or actual fishery closures, in fisheries in which harvests approach OFL. The 2 million mt OY in the BSAI also contributes significantly to preventing overharvests. The controls on fishing mortality in setting harvest specifications ensure the stocks are able to produce MSY on a continuing basis.

*Increasing enforcement responsibilities*

The number of TAC categories with low values of ABC/OFL are increasing which tends to increase the likelihood that closures of directed fisheries to prevent overfishing will occur. In recent years management of species groups has tended to separate the constituent species into individual ABCs and OFLs. For example, in 1991 the category 'other red rockfish' consisted of four species of rockfish. By 2007, one of those species (sharpchin rockfish) had been moved to the 'other rockfish' category and northern, shortraker, and rougheye are now managed as separate species. While managing the species with separate ABCs and OFLs reduces the potential for overfishing the individual species, the effect of creating more species categories can increase the potential for incurring management measures to prevent overfishing, such as fishery closures. Managers closely watch species with fairly close amounts between the OFL and ABCs during the fishing year and the fleet will adjust behavior to prevent incurring management actions. Currently the NPFMC is considering separating components of the 'other species' category (sharks, skates, octopus, sculpin). Should that occur, incidental catch of sharks for example could impact management of the pollock fishery. As part of the 2006 'other species' incidental catch of 1,973 mt in the pollock fishery, 504 mt were shark. The tier 6 ABC for shark as part of the 'other species' category in 2006 was 463 mt and OFL 617 mt. If sharks were managed as a separate species group under their current tier, the pollock fishery would likely have been constrained in 2006.

*Improved enforcement through VMS*

The entire pollock fleet now carries VMS due to VMS requirements introduced in connection with the AFA. In-season managers currently use VMS intensively to manage fisheries so that harvests are as close to TACs as possible. VMS has also become a valuable diagnostic tool for addressing situations with unexpected harvests. It was used as a diagnostic tool in July 2006 to investigate the sources of a sudden and unexpected bycatch of squid in the pollock fishery. As agency experience with VMS grows, it should allow in-season managers to more precisely match harvests to TACs, reducing potential overages, and maximizing the value of TACs to industry.

### 4.4.3 Actions by Other Federal, State, and International Agencies

*Future exploration and development of offshore mineral resources*

The Minerals Management Service (MMS) expects that reasonably foreseeable future activities include development of oil and gas deposits over the next 15-20 years in federal waters off Alaska. Potential environmental risks from the development of offshore drilling include the impacts of increased vessel offshore oil spills, drilling discharges, offshore construction activities, and seismic surveys. The MMS has published a notice of intent to prepare an Environmental Impact Statement for oil and gas lease Sale 214 which is tentatively scheduled for 2011 in the "program area" of North Aleutian Basin, offshore the State of Alaska. A notable proportion of the pollock fishery occurs in the North Aleutian Basin program area, and adverse environmental impacts resulting from exploration and development in the future could impact pollock stocks. The extent to which these impacts may occur is unknown.

### 4.4.4 Private actions

*Commercial pollock fishing*

The analysis assumes that the commercial fishery for pollock will continue into the future, and the direct effects analysis has been designed to study the impacts of the fishery.