outdated and new data were not readily available to update the model. As a result, these additional alternatives were not analyzed using the model. The Council's preferred alternative was the 9-block closure.

In addition, the bycatch simulation model projects closures on the basis of historical bycatch rate data since 1990. A closure would not be projected by the model if the bycatch limit in question exceeded bycatch amounts in the years used in the model. For example, the model would not project closure of any area of the BSAI as a result of a 48,000 chinook salmon bycatch limit because this amount exceeds historical bycatch in any year since 1990. Therefore, even if the bycatch simulation model had been updated for new management measures and data, no closure would have been projected as a result of the preferred alternative.

The EA/RIR/FRFA does not base the economic analysis on the results of the bycatch simulation model. Rather, the analysis is based on geographical analysis of the location and timing of historic catch and bycatch data. The analysis identifies times and areas of high chinook salmon bycatch and compares the proportion of estimated chinook salmon bycatch and total groundfish catch from the trawl fisheries for pollock and Pacific cod in these areas. The CHSSA were selected because they represented areas with a relatively high proportion of the overall chinook salmon bycatch in comparison with the proportion of total groundfish catch.

Although historical chinook salmon bycatch indicates that it is unlikely that the CHSSA would close, the analysis does recognize the importance of these areas in that between 20 percent and 49 percent of groundfish harvested in the pollock and cod trawl fisheries between 1990 and 1993 were harvested in the CHSSA.

The response to Comment 4 addresses concerns about the adequacy of observer sampling data as a basis for estimating salmon bycatch amounts.

Comment 2: The bycatch simulation model does not address impacts of a closure on halibut and Tanner crab bycatch in the cod fishery.

Response: The bycatch simulation model does project changes in halibut and Tanner crab bycatch that would occur if areas close and fishing effort moves to adjacent areas. However, for the reasons discussed above, the bycatch simulation model was not used to analyze the impacts of Amendment 21b. If the model had been used, it would have projected that the 48,000 chinook salmon bycatch limit would not have been reached and, therefore, that this alternative would have no affect on halibut and Tanner crab bycatch.

The geographical based information summarized in figures, maps, and text contained in the EA/RIR/FRFA addressed the distribution of groundfish catch and chinook salmon bycatch in the pollock and cod fisheries. This information did not address halibut and Tanner crab bycatch in CHSSA or adjacent areas.

Comment 3: Closure of a smaller area north of Unimak Island could reduce salmon bycatch by 25 percent at all levels of salmon abundance, while only redistributing about 6 percent of the ''A''-season pollock effort. This closure is preferable to the proposed CHSSA.

Response: The EA/RIR/FRFA confirms that the areas north of Unimak Island, identified as the ''horseshoe'' and ''Unimak'' blocks, have historically contributed substantially to the chinook salmon bycatch amounts. However, other areas along the 200-m contour, and the remaining blocks included in the CHSSA, also have experienced high chinook salmon bycatch in one or more years. The variability associated with historical chinook salmon bycatch, in the same area from year to year and in adjacent areas in the same year, indicate the difficulty in predicting where salmon bycatch problems will occur in the future. NMFS believes that closure of the CHSSA in response to high bycatch amounts will provide a better ability to limit bycatch for the remainder of the year than would closure of a smaller area. In addition, the Council considered trade-offs between potential groundfish catch and chinook salmon bycatch in selecting the CHSSA as their preferred alternative.

Comment 4: The procedures used to estimate historical chinook salmon in past years are neither precise nor accurate. The CHSSA cannot be enforced until NMFS reforms its chinook salmon bycatch estimation procedures.

Response: NMFS disagrees. NMFS conducted a comparison of whole haul and partial haul sampling (including basket sampling) data. Results showed that partial haul sampling produced accurate estimates of bycatch. Although the variance of the estimate increased as the sample size decreased, no bias was detected. The same analysis showed that regulations requiring retention of salmon until counted by an observer (§ 675.20(c)(6)) failed to obtain accurate numbers overall. Accurate counts were highly linked to the presence of an observer. NMFS concludes that the most accurate salmon bycatch estimates are those derived from direct observer sampling, and that increasing precision can be obtained by increasing sample sizes. NMFS believes that the CHSSA can be enforced using existing methods for estimating chinook salmon bycatch.

Comment 5: Historical chinook salmon bycatch is not a valid basis for predicting locations of high salmon bycatch in the future. Therefore, NMFS should use ''hot spot authority'' to close areas of high chinook salmon bycatch.

Response: NMFS disagrees. NMFS has the authority to close an area to fishing due to high bycatch rates. However, in practice, NMFS cannot collect accurate in-season bycatch data fast enough to make timely closures of high bycatch areas. Therefore, NMFS recommends that the Council identify areas of historically high bycatch rates and use a prohibited species catch limit to trigger closure of these areas.

Comment 6: Limits in chinook salmon bycatch could have been accomplished through co-management using the voluntary Salmon Research Foundation initiative.

Response: The Council considered the alternative of ''status quo,'' which would have allowed continued development of voluntary salmon bycatch limitations initiatives like the Salmon Research Foundation. However, the Council chose to recommend a chinook salmon prohibited species catch limit that triggers closure of the CHSSA, recognizing the potential negative impact the action would have on the voluntary program initiated by the Salmon Research Foundation. NMFS acknowledges the laudable work conducted by the Salmon Research Foundation to address the salmon bycatch problem. However, NMFS concurs in the Council's recommendation, given that not all trawl vessels participated in the Foundation's voluntary program. In addition, the future effectiveness of the Foundation's program would be largely dependent on the unknown ability of competing trawl industry groups to engage in widespread cooperation and voluntary participation in the Foundation's program. Amendment 21b provides a more certain mechanism for limiting chinook salmon bycatch in the future.

Comment 7: Any trigger that closes an area is more likely to be reached in years of increased chinook salmon abundance when there is less need to constrain bycatch than in years of low chinook abundance.

Response: NMFS agrees that there is more of a need to constrain chinook salmon bycatch in years of low abundance and the EA/RIR/FRFA shows that low bycatch has been followed, in