D. SILVER HAKE STOCK IDENTITY ADVISORY REPORT

The SARC reviewed the preliminary results arising from a research study concerning silver hake (whiting). Although a formal stock assessment of silver hake had not been undertaken by the current SAW, it was appropriate for the SARC to review the findings of this research study as it had used a microsatellite DNA study to investigate an issue of considerable relevance to the management of this fishery, *i.e.*, a determination of whether the assemblages of silver hake from the Mid-Atlantic Bight, southern and northern Georges Bank, Gulf of Maine, and the Scotian Shelf could be considered as representing different stocks.

The standard Advisory Report format for reporting scientific stock status and stock specific management advice is not well suited to such a review. Therefore, we report on the SARC's findings with respect to the following objectives, which were considered by the research study, and then present our conclusions regarding the stock structure of silver hake.

Terms of Reference

1) Determine whether the abundance of silver hake is related to Mid-Atlantic Bight bottom water temperatures;
2) Determine whether the assemblages of silver hake from the Mid-Atlantic Bight, southern and northern Georges Bank, Gulf of Maine, and the Scotian Shelf represent different stocks.

The relationship between abundance and bottom water temperature

There was no evidence to support the hypothesis that the abundance of silver hake was related to bottom water temperatures. In both spring and fall, these temperature lie well within the range of preferred temperatures for this species, as recorded in published reports.

Stock identity of the different assemblages

The investigators reported that the research team's initial decision to use a single locus for the determination of allelic frequencies was inappropriate and that a larger number of loci are required for such a determination. Other problems, including the small number of fish, inappropriate sampling regime, and use of null alleles, were identified as being major structural problems of the experimental methods. Accordingly, the data that had been collected were not of a sufficient quality to use in further analysis. Preliminary
findings, which had resulted from an analysis of these data, had indicated that the assemblages in each site were drawn from stocks that, on the basis of allelic frequencies, were statistically distinct. However, in addition to the inadequacy of the reported data, this analysis did not use the most appropriate statistical methods. Thus, as the investigators had advised and the SARC had

determined, no valid conclusions can be drawn from these data. The investigators advised that, in their on-going research, they planned to improve their sampling regime, extend the number of loci, and apply appropriate statistical methods.

Conclusions

No additional information on the stock structure of silver hake is available. Accordingly, management agencies should continue to apply the currently accepted description of stock structure when considering strategies for the management of this species.