SHORT REPORT ON RESULTS FROM ALTERNATIVE ASSESSMENTS OF THE GREENLAND HALIBUT RESOURCE

D S Butterworth and R A Rademeyer
MARAM (Marine Resource Assessment and Management Group)
Department of Mathematics and Applied Mathematics
University of Cape Town
Rondebosch 7701
South Africa

An alternative method to XSA-VPA for using the available data to model the dynamics of the Greenland halibut resource in question has been pursued. This other approach is called an Age-Structured Production Model, ASPM (or in some fora Statistical Catch-at-age Analysis). Results from the ASPM approach suggest that the XSA underestimates the number of older fish in the population, and that the biomass is larger in absolute terms. However it unfortunately also suggests that the productivity of the resource is less than does XSA. The net result of these two differences is prognoses similar to those from the XSA: that TAC reductions of the size currently contemplated are necessary to arrest the recent decline indicated in resource abundance. Fig. 1 below shows results typical of those we have obtained.

A broad range of variations of this approach has been explored (Fig. 1 shows one of the more positive of the scenarios examined) in an attempt to ascertain whether some plausible formulation could produce qualitatively different results, but thus far without success. Our impression is that given that all the existing indices of abundance which are used to fit the population models show generally downward trends over the late 1990s, this negative conclusion is likely unavoidable.

One further possibility which might be considered is that we are not dealing here with a fully mixed homogeneous stock, as both the XSA and ASPM computations have implicitly assumed. Taking this possibility into account could lead to different results, but to develop such a spatially disaggregated model would involve substantially more work.

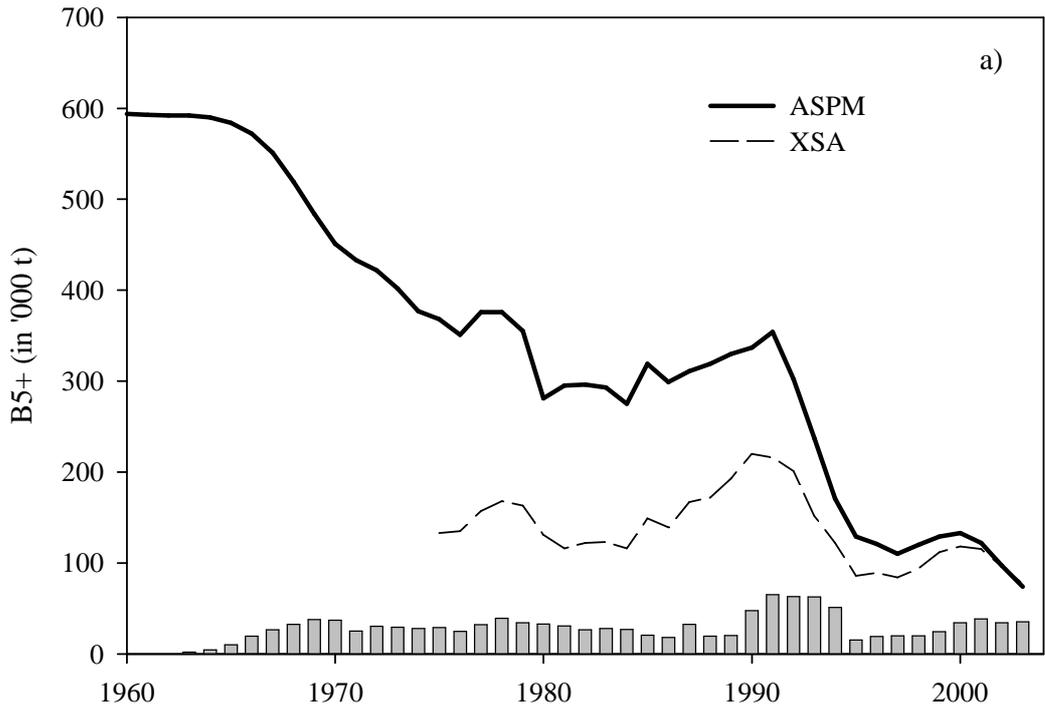A more detailed report of the work we have carried out could be compiled if desired.

Fig. 1: a) Time-series of estimated 5+ biomass for the ASPM and XSA assessments, b) ASPM (*h*=0.9, *M*=0.25) 10-year projections (dashed line) under a fixed catches (20000t in 2004, 19000t in 2005, 18500t in 2006 and 16000t thereafter). The solid bars are the actual catches made and the striped bars are the catches assumed for the projection.