

## APPENDIX C2: Comments from SARC 42 Working Group meeting 2 (October 24-28, 2005)

The Working Group (WG) reviewed a comparison of the weekly *Illex* landings from the Dealer Weighout database versus the Vessel Trip Report (VTR) database for 1999-2004. During all years except 2004, the weekly landings reported in the VTR database were of similar magnitude. The WG discussed the discrepancy between the weekly landings reported in the two databases for 2004 and noted that one possible reason for the discrepancy is the increase in effort by RSW boats in 2004 in comparison to 2003. Reporting of the kept fraction of the catch by RSW captains is likely to be less accurate, because unlike freezer boats, catches are not boxed and weighed at sea. However, it was unknown whether underreporting in 2004 was greater for RSW vessels than freezer trawlers and the number of vessels from both fleet sectors increased between 2003 and 2004.

The WG noted that fewer vessels were involved in the 2003 fishery and suggested a comparison of VTR landings by vessel during 2003 and 2004 to determine whether underreporting in 2004 was due in part to a change in behavior of captains who reported accurately in 2003 or due to the addition of RSW vessels with poorer reporting accuracy.

The WG noted the possibility that part of the 2004 end-of-season decline in the number of trips after week 34 was due to a temporary shut down at one of the main *Illex* processing plants, Lund's Fisheries, for maintenance.

The WG discussed the trends in the percentage of survey tows in which *Illex* was caught with respect to whether increases in relative abundance were associated with increases in dispersion indices. The WG noted the importance of distinguishing between changes in geographic distribution that may affect the number of positive tows and changes in abundance that would also influence the number of positive tows particularly given that the NEFSC surveys only cover a portion of *Illex* habitat.

The WG noted that  $R^2$  value from the General Linear Models (GLM) were relatively high in comparison to GLM runs for groundfish fleets. It was suggested that a histogram or other plot of the catch rate data would be useful to judge how well the *Illex* fishery data conform to the GLM model assumption of log-normality.

The WG noted that some of the weekly and bi-weekly variability in nominal landings per unit effort (LPUE) was due to the duration of freezer trawler trips which tend to be of one to two weeks in duration with trip departure and return days that consistently occur on similar days of the week (e.g., Monday and Saturday). A suggestion was made to evaluate the use of a running average of LPUE to minimize the week-to-week noise, especially in 2003, when the catch was dominated by freezer trawlers who employ this fishing strategy.

The Working Group was concerned that the underreporting of landings in the 2004 VTR reports affect might affect the LPUE estimates for 2004 and suggested the use of the 'week' coefficients from the GLM to back-calculate standardized model effort.

Several models were improved and carried forward from the last assessment. These models showed improvement over the last assessment but issues of data availability and model formulation still remain. The WG agreed that continued development of the models presented is important because the approaches being used appear to be valid for this semelparous species.

The WG expressed concern about the representativeness of the maturity ogive given that it was derived from data collected in May and therefore may not describe maturity trends throughout the course of the entire fishing season. The WG recommended collecting in-season age and maturity data to assess how changes in growth, maturity and recruitment influence model output.

The WG noted that the in-season assessment model has a basic assumption that maturity is age-dependent and that selectivity is length-dependent and expressed concern about whether the age- and length-based assumptions were compatible.

The WG noted that selectivity is complicated, particularly during the latter part of the fishing season due to emigration of large females to spawn, recruitment, cannibalism, and possible increases in growth rates. This might result in a dome-shaped selectivity curve at that time. The WG noted that the late-season decline in squid size/weight has a number of competing explanations that may influence the model differentially depending on, for example, the relative importance of off-shelf migration versus spawning mortality.

The WG discussed the possibility that the in-season model may not be formulated correctly for recruitment during the fishing season and suggested that alternative methods of quantifying recruitment be examined. For example, the model could be allowed to estimate recruitment by subtracting  $M$  plus  $F$  from the initial stock size and assuming that  $F$  equals zero.