Stock assessment of *Mullus surmuletus* from GFCM GSA-05 (Balearic Islands)

Quetglas A., Guijarro B., Ordines F., Moranta J.

IEO-Centre Oceanogràfic de Balears

Striped red mullet (*Mullus surmuletus*) is one of the most important target species in the trawl fishery developed by around 40 vessels off Mallorca (Balearic Islands, GFCM-GSA05). A fraction of the small-scale fleet (~100 boats) also directs to this species during the second semester of the year, using both trammel nets and gillnets. During the last decade, the annual landings of this species have oscillated between 73-117 and 17-29 tons in the trawl and small-scale fishery, respectively.

The stock of *Mullus surmuletus* of the GFCM-GSA05 has been assessed using data from both the trawl and the small-scale fishery on a time series covering nine years (2000-2008). The assessment has been carried out applying tuned VPA (Extended Survivor Analysis, XSA) on the cohorts present during 2000-2008 and both VPA and Y/R analysis on a mean pseudo-cohort from that period. These approaches were performed using monthly size composition of catches, official landings and the biological parameters estimated within the framework of the Data Collection Programme (2003-2004). The VPA was tuned with CPUE from commercial trawl fleet (2000-2008) and bottom trawl surveys (2001–2008). The vector of natural mortality by age was calculated from Caddy´s (1991) formula, using the PROBIOM Excel spreadsheet (Abella et al., 1997). The softwares used were the Lowestoft VPA program (Darby and Flatman, 1994) for the XSA and the VIT program (Lleonart and Salat, 1992) for the VPA and Y/R analysis from a mean pseudo-cohort.

References

Abella, A., Caddy, J.F., Serena, F., 1997. Do natural mortality and availability decline with age? An alternative yield paradigm for juvenile fisheries, illustrated by the hake *Merluccius merluccius* fishery in the Mediterranean. *Aquat. Liv. Res.,* 10: 257–269.

Caddy, J.F., 1991. Death rates and time intervals: is there an alternative to the constant natural mortality axiom? *Rev. Fish. Biol. Fish.,* 2: 109–138

Darby, C.D. and S. Flatman, 1994. Virtual Population Análisis: version 3.1 (Windows/DOS) user guide. *Info. Tech. Ser., MAFF Direct. Fish. Res., Lowestoft, nº 1*, 85 pp.

Jardim, E. and Azevedo, M. (2004). FLeda - an R package for fisheries exploratory data analysis, version 0.0-2.

Lleonart J. and J. Salat (1997) VIT: Software for fishery analysis. User´s manual. FAO Computerized Information Series (Fisheries). Nº 11. Rome, FAO, 105 pp.