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Macro And Microscopic Gonads Evaluation, Case Of Merluccius Merluccius

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Abstract Stock assessment of important economic fishery species is fundamental for sustainable management of resource and fishery industries and for biodiversity conservation. Mediterranean Hake (Merluccius merluccius, smiridus Rafinesque, 1810) is a demersal species, among the most important commercial marine fish resource of the Mediterranean Sea. Fish stock assessment is based on fish reproductive biology knowledge and Spawning-Stock Biomass (SSB) estimation. The SSB evaluation is based on the proportion of reproductively active females into the stock. However no detailed study has been conducted on M. merluccius reproductive biology since 1973 in the south-central of the Mediterranean Sea. To this end, a study on sustainable management of Merluccius merluccius stock, off Tunisian water, was established, basing on the biological data collection . From November 2010 to October 2011, females of Mediterranean Hake were collected offshore of northern Tunisian coast using commercial trawls. Reproductive features were studied by macroscopic and microscopic ovaries observation. Microscopic evaluation allowed a better classification of oocyte development than macroscopic examination. Histological examination revealed that ovarian development is asynchronous and confirmed that this species is a partial spawner and spawns along the year. The evaluation of both maturity staging methods were provided statistical different results. Length-at-maturity was estimated to 26 cm by macroscopic analysis and 29 cm by microscopic analysis. . Length-weight relationship showed a positive allometric regression. Large female have increased in height or width

more than in length, confirming the dwarfism of Mediterranean hake. Relative condition factor, gonadosomatic index and hepatosomatic index were estimated, presenting that hake was breeding especially in summer (August) and in winter (January). Hake reproduction did not depend only on energy reserve but also on daily feeding mainly in the hot season during the summer. These results confirmed the importance of correct reproductive parameters evaluation and histological analysis to accurate maturity determinations, SSB estimates and peak spawning period determination, allowing to improve the assessment and management of an overexploited fish species, like M. merluccius. Keywords: Merluccius merluccius, Tunisia, ogive maturity, macroscopic observation, histological examination