Abstract

Stock assessment of sardine and anchovy fishes in Persian Gulf and Oman Sea (Hormuzgan province) using fish population dynamics parameters and stock assessments models were carried out to estimate maximum sustainable yield (MSY) from 2010-2012. Results of 16 years (1996-2012) fisheries data analysis showed the mean of CPUE (catch/shooting) were calculated for Gill nets, Beach siene and Purse siene as 134, 988 and 2338 kg/shooting respectively. Relationships of catch and effort were determined for Qeshm area (R^2=0.94) , Bandar Lengeh area (R^2=0.51) and Jask area (R^2=0.73) as a polynominal increasing model.

Population dynamics parameters using monthly length frequency of 10540 sardine and 8232 anchovy by FiSAT II from Persian Gulf (Qeshm-Bandar Lengeh) and Oman Sea (Jask) fishing areas. Growth parameters K and $L\infty$ of sadine (*Sardinell sindensis*) were estimated 1.18 y^{-1} and 19.1 cm in Persian Gulf and 1.11 y^{-1} and 19.1 cm in Oman Sea, and also for anchovy (*Encrasicholina punctifer*) were estimated 1.20 y^{-1} and 9.2 cm in Persian Gulf and 1.18 y^{-1} and 9.3 cm in Oman Sea. Anually, 5 cohorts for sardine and 2 cohorts for anchovy were estimated using Bhattacharya method in Persian Gulf and Oman Sea. Natural mortality (M) and fishing mortality (F) were estimated for this species, and exploitation rate of sardine were calculated as 0.58 and 0.44, and exploitation rate of anchovy were 0.54 and 0.34 in Persian Gulf and Oman Sea respectively. Length of catch (L_C) were calculated 11 cm and 12 cm, and for anchovy 6.8 cm and 6.6 cm in Persian Gulf and Oman Sea respectively. Length – weight relationships of sardine and anchovy were calculated as isometric growth. Results of this study showed that populations of sardine and anchovy in Qeshm and Bandar Lengeh area are a single-unite stock, no enough evidence for discrimination of sardine and anchovy populations in Persian Gulf and Oman Sea.

The mean anuall biomass of sardine and anchovy were estimated using Thompson and Bell model 190000 tones in Hormuzgan province. Maximum sustainable (MSY) of sardine and anchovy were estimated between 59721 and 98309 tones in this area. MSY of sardine were calculated 15222 and 3182 ton and MSY of anchovy were 36237 ton and 5080 ton , for minimum of estimated MSY in Persian Gulf (Bandar Lenghe-Qeshm) and Oman Sea (Jask) respectively. Using yield per recruit of Beverton and Holt model , $F_{0.1}$ were estimated averagely 1.75 for sardine and anchovy in Hormuzgan province and its showed the underfishing condition. Survey of catch and efforts trend in sardine and anchovy, defined development phase of small pelagic fisheries in Hormuzgan province.