

Present status of the demersal fishery in the coastal waters off Uswetakeiyawa, Sri Lanka with special emphasis to gear selectivity pattern of three demersal fish species dominant in the commercial catches

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This study evaluates the present status of the demersal fishery in the coastal waters off Uswetakeiyawa, Sri Lanka and the gear selectivity pattern of three demersal fish species dominant in commercial landings. Catch and effort data were collected at the Uswetakeiyawa fish landing site from January to December 2016 by making bi-weekly field visits. Total length and gear specific information of *Lethrinus lentjan*, *Lethrinus nebulosus*, *Lutjanus fulvus* were collected to evaluate gear selectivity pattern. There is a year around demersal fishery in the coastal waters off Uswetakeiyawa and the estimated total demersal fish landings during the study period was 93.6 Mt. Fifty one demersal and semi demersal finfish and shellfish species belonging to 21 families were identified in the commercial catches. Although demersal fishing activities have continued throughout the year, the period from November to March seems to be the ideal season. Monthly variations in CPUE and fishing effort clearly showed a seasonality and the highest CPUE (\pm SD) was reported in November (63.84 ± 3 kg boat⁻¹) while the lowest was in August (20.8 ± 4 kg boat⁻¹). Species belonging to family Lethrinidae reported the highest contribution to the demersal fish landings (19%) followed by family Carangidae (17%) and Lutjanidae (15%). Bottom-set longline with hook sizes 13 mm and 17 mm and bottom-set gillnets with mesh sizes 1 ½"(37.5mm), 2 ¼"(56.25 mm), 3 ½"(87.5mm) and 6"(150 mm) are widely used to exploit demersal fishes. Selection ranges (cm) respectively, for hook size 13 mm and 17 mm were 17.3 - 32.5 and 25.0 - 40.2 for *L. lentjan*, 19.5 - 35.2, 28.0 - 43.7 for *L. nebulosus* and 15.8 - 34.3, 23.5 - 42.0 for *L. fulvus*. Estimated optimal length (L_{opt}) (cm) for these species for hook size 13 mm were 24.9, 27.4 and 25.0 while for 17 mm these values were 32.6, 35.8 and 32.7, respectively for *L. lentjan*, *L. nebulosus* and *L. fulvus*. From the findings of this study and published information on size at first sexual maturity (L_{50}) of these species, it can be concluded that there is a potential for catching immature individuals of these species when 13 mm hook size (No. 9 hook) is used. Therefore, the bottom-set longline with 17mm hook size seems to be the most suitable gear to exploit *L. lentjan*, *L. nebulosus* and *L. fulvus* in sustainable manner.

Keywords: Demersal fishery, Gear selectivity, Size at first sexual maturity (L_{50})