Visual function of Pacific saury *Cololabis saira* in the capture process of light fishing
（サンマ漁業における灯光利用技術に関する研究　Ⅳ
集魚灯漁業の漁獲過程におけるサンマの視覚機能）

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[Objective] The visual function of Pacific saury *Cololabis saira* was investigated for better understanding of the capture process of light fishing, through analyzing two visual aspects consisted of the light/dark adaptation process and visual acuity.
[Methods] The retinomotor response was examined from the cone movement to identify the retinal adaptation for 15 individuals (FL:158-259mm) using monochromatic light with different wavelengths of blue light 470nm, green light 530nm, & red light 620nm, according to the different time elapsed for lighting as 5min, 10min, 20min, 30min, & 60min. The developmental changes in the visual acuity were also investigated by histological examination through the cone density and lens diameter, for 25 individuals of the size range of 75-335mm in fork length.
[Results] Concerning the process of the retinomotor responses to the monochromatic light for blue, green and red light, the cone started to move in 5 minutes after turning on the light, with different transitional adaptation stages due to the light color, and fully light-adapted in 60 minutes. The highest cone density was located in the ventro-temporal region of the retina. The lens diameter increased from 1.40 mm to 4.71 mm proportionally with the growth of fork length, whilst the cone density tends to decrease from 378-765cells/0.01mm^2. According to the results, the visual acuity was increased with growth as 0.057 for 75 mm FL to 0.136 for 335 mm FL.