North Pacific Fisheries Commission

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Information of the surveys for Pacific saury conducted during winter season in 2007 and 2011

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Introduction

Knob length (KnL) and body weight (BW) of Pacific saury changes seasonally. Its BW increases during the feeding migration in spring-summer season and decreases during the spawning migration and spawning in autumn-winter season (Kurita 2003). Therefore, seasonal information of its size in each age class would be helpful to construct the age-structured stock assessment models containing seasonal time steps. Japan has carried out surveys during winter season for the biological study of Pacific saury. We shall here provide the information of winter season surveys conducted in 2007 and 2011.

Materials and methods

Information of the winter surveys was summarized in Table 1. The surveys were conducted in the western North Pacific Ocean (Fig. 1) during winter season (Jan.-Mar.) in 2007 and 2011 by FR/V Kaiyo Maru (Fisheries Agency of Japan). Surface trawl net (NST-660; Nichimo Co. Ltd) was towed for 1 hour to collect the Pacific saury at each station. Up to 260 samples at each station were frozen on the bord and brought to the laboratory.

KnL (to the rearrest 0.1 cm) and BW (to the nearest 0.1 g) were measured for all samples. Otoliths (sagitta) were extracted from up to 80 individuals per one station. Ages were determined by the otolith observations following Suyama et al. (2006).

Results

Pacific saury was collected broadly in the western North Pacific Ocean during winter season (Fig. 1). The KnL ranges of samples applied for the age determination were 14.9-32.8 cm and 19.8-32.4 cm in 2007 and 2011, respectively (Fig. 2). The BW ranges were 11.8-133.6 g and 28.7-139.0 g in 2007 and 2011, respectively. KnL-BW relationship and weights at age are reported in Fuji et al. (2021a). See Fuji et al. (2021b) for further results and discussion about the distribution and maturity of Pacific saury in winter season.

References

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Table 1. Summary of the winter surveys in 2007 and 2011

Year	2007	2011
Duration	2 Feb. to 14 Mar.	14 Jan. to 7 Mar.
Area	30°28'N - 39°32'N, 140°58'E- 170°05'E	33°58'N - 40°47'N, 141°06'E - 163°02'E
Sea surface temperature range	9.1 - 20.0 °C	7.9 -18.0 °C
Number of stations	51	32
Gear	Surface trawl net (NST-660)	Surface trawl net (NST-660)
Vessel	R/V Kaiyo maru	R/V Kaiyo maru
Total number of Pacific saury collected	14,000	2,373
Number of samples for age determination	1,168	510
Number of samples of age 0	1,150	333
Number of samples of age 1	18	177

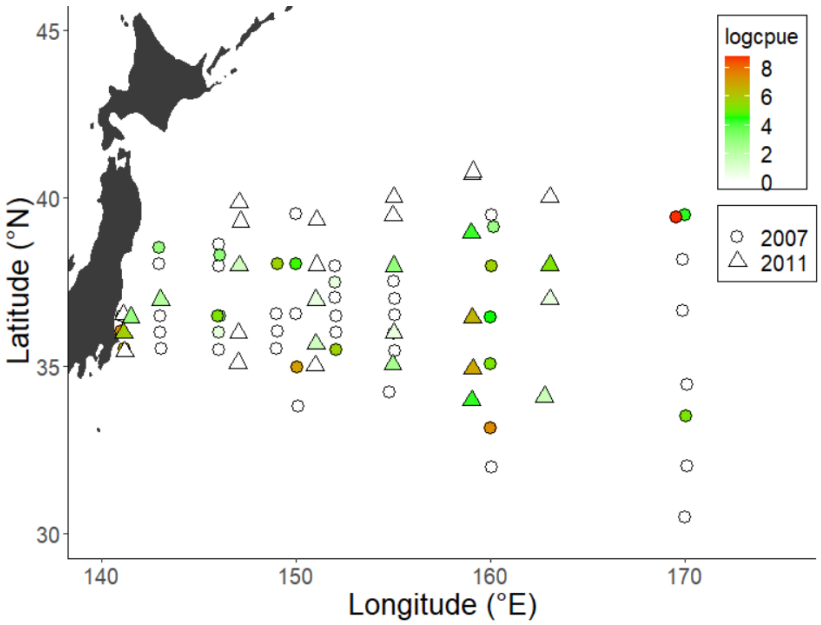

Figure 1. Sampling stations of the winter surveys conducted in 2007 and 2011. Colors of plots indicate sample size (log number of Pacific saury collected plus one).

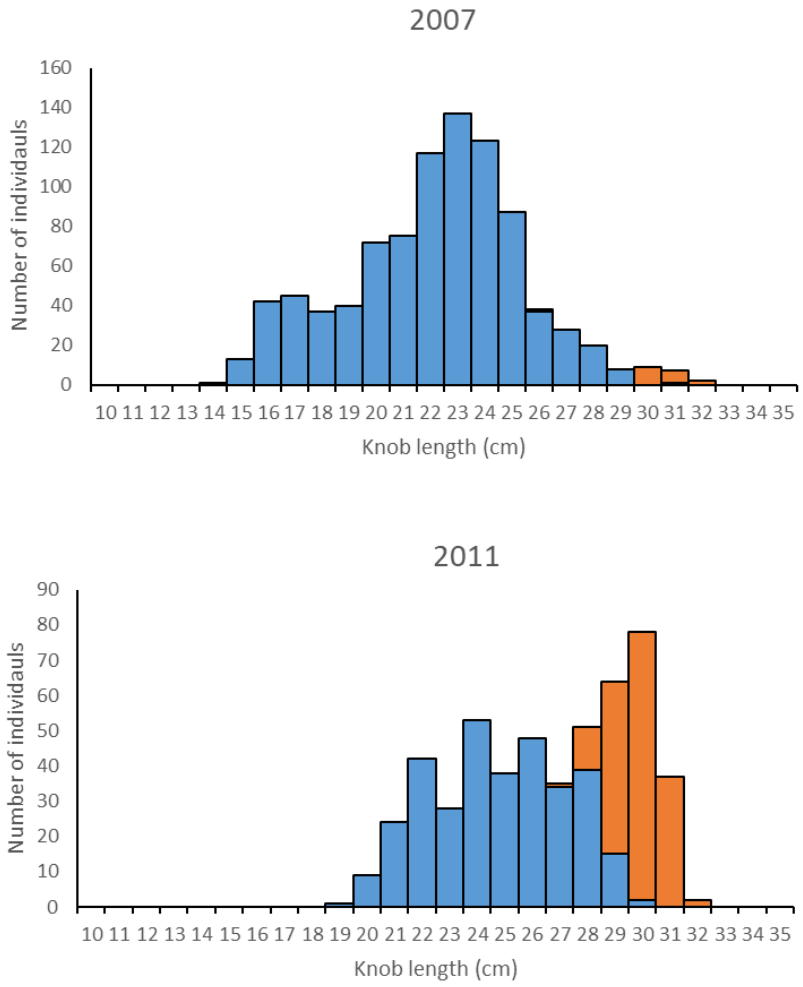

Figure 2. Size composition of collected Pacific saury in 2007 and 2011. Blue and orange colors indicate age-0 and age-1 fish determined by otolith observations, respectively.