DISTRIBUTION AND POPULATION STRUCTURE OF NORWAY LOBSTER (NEPHROPS NORVEGICUS LINNAEUS, 1758) IN SAROS BAY (NORTH AEGEAN SEA, TURKEY)

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Abstract
Distribution, length composition, CPUE (kg/h), biomass (kg/km²) indices and growth parameters of Nephrops norvegicus from Saros Bay (North Aegean Sea) were determined. Monthly samples were collected (2554 specimens) by bottom trawl from the depth interval 20-500 m, in the period of June 2005-July 2008. Minimum carapace length 21 mm in females, 23 mm in males and maximum carapace length 59 mm in females, 72 mm in males were detected. The mean CPUE, biomass and catch rate were calculated 10.58 kg/h, 186.65 kg/km² and 3.8% respectively. Growth parameters estimated using the ELEFAN program as L∞=81.9 mm (CL), K=0.07 year⁻¹. Length-weight relationship was determined W=0.0004*L^3.13

Keywords: Biomass, Saros Bay, Crustacea, Growth, Population Dynamics

Introduction
The Norway lobster, Nephrops norvegicus is one of the main target species of the commercial fisheries in the Mediterranean continental shelf and have been the subject of important biological and fishery studies [1], [2]. Nephrops norvegicus is a sedentary lobster which inhabits burrows constructed in muddy substrates throughout the continental shelf of the north-eastern Atlantic and Mediterranean [2].

Material and Methods
Samples were collected by a commercial bottom trawl net with a cod end stretched mesh size of 22 mm, at monthly sampling intervals from June 2005 to July 2008 at the range of 20-500 m depths, and there were 184 sampling station (Figure 1). Though, Nephrops norvegicus specimens were caught from the depth range of 200-500 m, trawl duration was restricted to 30 min and the vessel speed was kept constant at 2.5 knots during hauling. CPUE was calculated for 1 hour, biomass was estimated using the swept area method [3]. Total and carapace lengths were measured to the nearest 0.01 mm with a caliper. Total weight was measured to the nearest 0.01 g. Length – weight relationship were calculated W=0.0004*L^3.13. The length data were also used for the direct estimation of growth parameters, applying ELEFAN 1 [4] implemented by the FISAT package [5].

Fig. 1. Sampling stations of Norway lobster in the Saros Bay.

Result and Discussion
In this study, a total of 2554 Norway lobster were sampled. Minimum carapace length 21 mm in females, 23 mm in males and maximum carapace length 59 mm in females, 72 mm in males were detected. The mean CL of females were measured 38 (±0.18) mm and 42 (±0.26) mm for males. Significant differences in the mean carapace length and total length were identified between seasons (p<0.05). Von Bertalanffy growth parameters estimated using the ELEFAN program and calculated L∞=81.9 mm (CL), K=0.07 year⁻¹. That was similar to the other studies [5]. The CPUE, biomass values and frequency of individuals were calculated in all seasons in Saros Bay (Table 1). The specimens were located only in the 200-500 m, and highly CPUE and biomass values between spring and summer period of the years. The reason for this might be the molting period of the Norway lobster which occur autumn and winter seasons of the year [6], and after the molting period the specimens were mostly caught. However, the highest values of abundance, both in number of individuals and in biomass, were located in the 200-500 m depth stratum in the N Aegean Sea [2].

Tab. 1. The seasonal CPUE (kg/h), biomass (kg/km²) values, catch ratio (%) and female-male ratio of Nephrops norvegicus in Saros Bay.

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References
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