

in Table 195. The mean index for plaice in 1979 was the lowest recorded and significantly different from all other years except 1975. The index for turbot was also low whereas that for sole was about average.

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Growth of 0-group sole, plaice, and dab off the Belgian coast in 1979

(Figures 178-180; Table 196)

Data on growth rates of 0-group sole, plaice, and dab were further compiled during 1979 from research-vessel catches in the nursery areas off the Belgian coast. The study on the growth expressed by monthly length distributions in percentages of the values per cm-group started in 1971 (*Annls biol., Copenh.*, 29:165; 30:191-193; 31:170-172; 33:161-163; 35:342-343).

Sole. The data from July to December 1979 concerned the growth of the 1979 year class. This first ap-

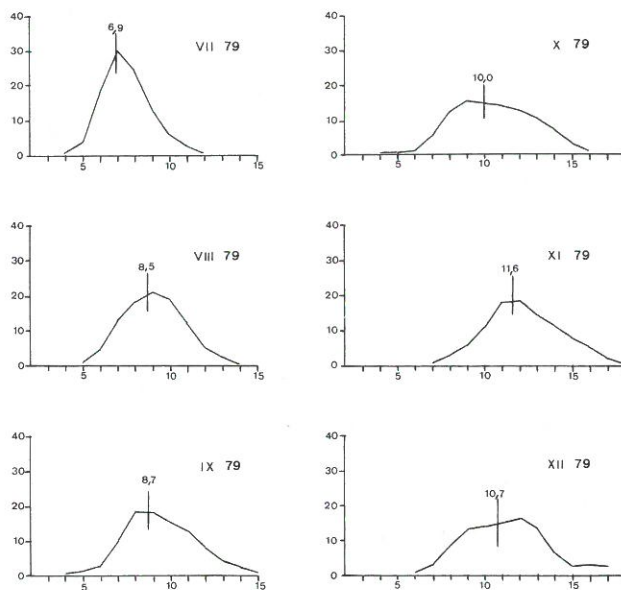


Figure 179. Monthly distribution (%) of mean length per cm-group of plaice (July-December 1979).

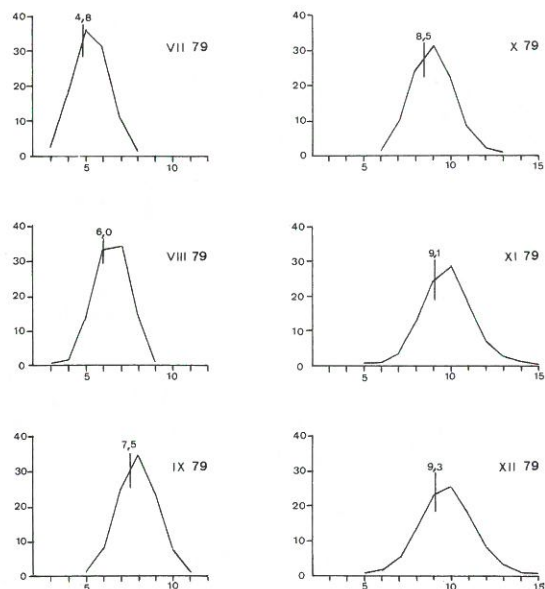


Figure 178. Monthly distribution (%) of mean length per cm-group of sole (July-December 1979).

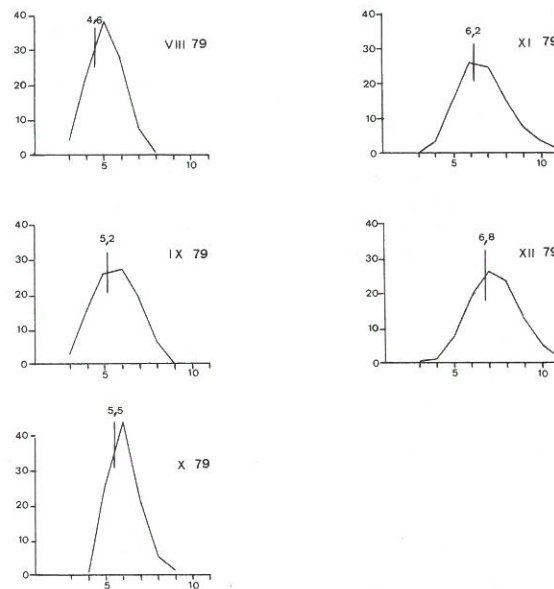


Figure 180. Monthly distribution (%) of mean length per cm-group of dab (August-December 1979).

Table 196. Summer temperatures at the surface during the period 1971-1979 (LV "West-Hinder")

	1971	1972	1973	1974	1975	1976	1977	1978	1979
Jun	12.9	12.5	14.1	14.0	13.0	14.4	12.9	12.9	13.0
Jul	16.1	14.8	16.8	14.9	15.9	18.2	15.3	14.6	15.4
Aug	17.7	17.0	17.6	16.7	16.1	18.6	17.0	16.5	16.5
Sep	16.2	16.0	17.7	16.1	16.7	17.8	16.5	16.7	16.4

peared in the catches of July 1979 with a mean length of 4.8 cm (Fig. 178). The subsequent data indicated a growth to about 9.3 cm in December.

Comparison of data with former observations showed that the growth of the 1979 year class was similar to that observed in the year classes of 1971 (9.1 cm), 1972 (9.6 cm), 1974 (9.2 cm), and 1977 (9.3 cm). The highest figure on record is still that of the 1976 year class with an autumn length of 11.3 cm, mainly owing to the high seawater temperatures recorded in that summer. During 1979 the seawater temperatures were much lower than in 1976, as shown in Table 196.

On the other hand, the density of the 1979 year class was the highest on record; a maximum of 325 0-group sole per km² was observed. During the 1978 sampling the maximum was about 22 0-group sole per km². Since this research only started in 1971 no comparison could be made with the densities of the very strong 1963 sole year class as 0-group.

Plaice. The growth of the 1979 plaice year class was studied from July to December 1979. The results indicated a constant growth from July (6.9 cm) to November (11.6 cm), seen in Figure 179, similar to that observed in previous years, except for 1978 (9.0 cm).

The recorded densities do not indicate a strong year class as seemed to be the case for sole.

Dab. The 1979 year class first appeared in the August catches with a mean length of 4.6 cm (Figure 180). The growth process continued up to December, reaching a mean length of 6.8 cm. No substantial differences in the growth pattern were evident from comparisons of the 1976, 1977, and 1978 year classes.

The abundance of 0-group dab along the Belgian coast resembled that of the 1978 observations.

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Soviet investigations on the survival of juvenile Baltic flounder in 1979

(Tables 197-198)

Fishery rules prohibit the keeping of juvenile flounder on board a vessel. The catch must be sorted, and the juveniles released. In the past it has been assumed that the released juveniles survive. To determine the survival rate of such juveniles, special investigations were carried out in June 1979. An experimental catch was made with a commercial flounder trawl from a 150 hp (MSTB-150) vessel in Subdivision 28 of the Baltic Sea at 8-12 m. Selected juveniles were kept in cylindrical net containers (diameter, 1.74 m; length, 8.0 m) which were placed horizontally on the bottom. The weather conditions during the experiment were: wind force, 1-3; air temperature, 13°-16°C. After 18 hours the containers were lifted and the survival rate calculated (Table 197). The mean survival was 34.1%. The smaller the fish, the higher the mortality (Table 198). The relation between survival P (%) and total length (l_0) is described by the following expression:
 $P = 5.865 l_0 - 77.346$, error $\pm 2.2\%$.

Table 198. Relation between length and mortality of juvenile flounder

Length (cm)	<i>n</i>	Survival (%)	Length (cm)	<i>n</i>	Survival (%)
15.5	32	9.4	19.0	557	33.0
16.0	75	14.7	19.5	566	35.2
16.5	99	23.2	20.0	666	39.6
17.0	194	29.9	20.5	541	40.3
17.5	234	25.2	21.0	420	46.4
18.0	346	24.8	21.5	121	52.9
18.5	341	24.3	22.0	112	53.6

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Flounder off the coast of Finland in 1978 and 1979

(Figures 181-183; Tables 199-200)

In 1979 the total catch of flounder in Finland was 399 tonnes (390 t in 1978). In 1978, 22% of the catch was taken in commercial fishing, mostly with gillnets. Catch and effort statistics are given in Table 199. The

Table 197. Survival rate of juvenile flounder in three experiments

Number of containers submerged	Mean trawling period (h)	Mean catch (kg)	Duration of selection from the catch (min)	Period kept in container (h)	Mean number of fish in container	Survival (%)
3	3.0	780	30	18	292	41.9
7	3.9	680	40-50	18	245	32.2
8	3.6	600	60	18	219	31.1
Total: 18	3.4	660	48	18	241	34.1