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Length conversion factors for four species of commercial flatfish

by

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Introduction

The four main commercial species of flatfishes in the Northwest Atlantic are Greenland Halibut, Witch flounder, American plaice and Yellowtail flounder. In recent years, with much attention focused on quality control and appearance of the fish fillet product, monetary incentives were offered to fishermen to introduce improvement. One such suggested improvement in quality was to allow the fish to bleed properly so as to avoid discoloration of the flesh. It was usually done by severing the caudal fin, thus allowing the fish to bleed completely through the caudal vein. With the caudal fin now missing an alternative method of getting length measurements had to be devised. The best alternative available appeared to be to the posterior end of the anal fin, referred to as "anal" lengths, which could then be converted back to total lengths.

Materials & Methods

A total of 266 Greenland halibut, 213 Witch, 142 American plaice and 248 Yellowtail were sampled for total length and anal length. The total length was taken from the tip of the snout to the end of the longest caudal fin ray. The anal length was taken from the tip of the snout to the base of the last anal fin ray. Both measurements were taken in millimeters. The total length frequency distributions are presented in Fig. 1.

The average anal length for each one centimeter group of total length was calculated and linear regressions were computed for these values (Fig. 2).

Results

The computed values for the four linear regressions are presented in the following table:

Species	Slope	Intercept	R	T Value for R
Turbot	0.8094	-1.3967	0.9983	84.8823
Witch	0.8360	-1.8547	0.9979	84.5308
Yellowtail	0.7548	+0.2853	0.9998	277.6048
Am. Plaice	0.7840	-0.921	0.9994	182.6741

With these new conversion factors available, new measuring boards were constructed at the St. John's Station for fish that have the caudal fins missing. These new boards now convert anal to total length directly from the measuring board without further computations.

References

Snedecor, George W. 1956. Statistical methods, 5th ed. Iowa State University Press, Ames, Iowa, 534 p.
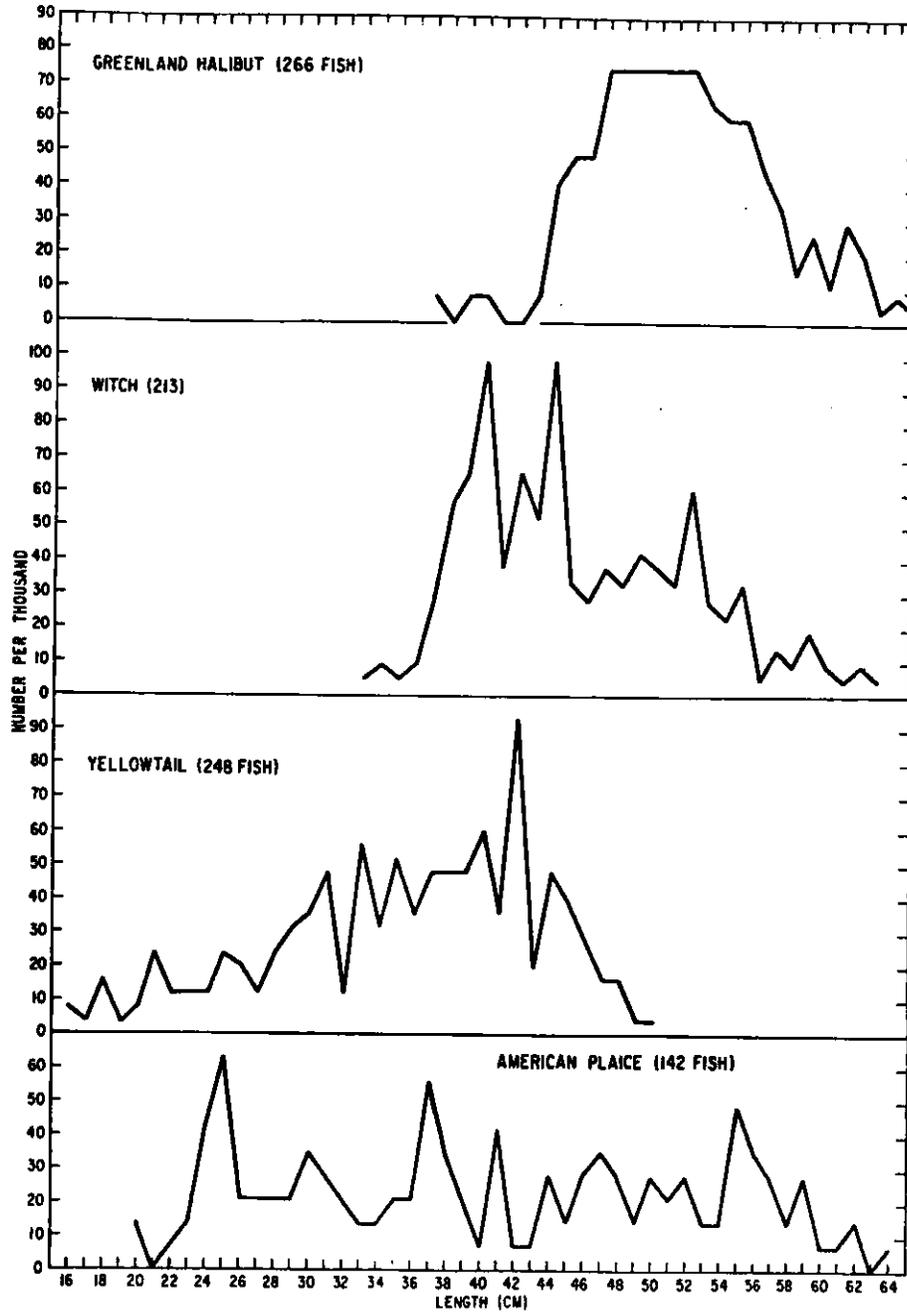
Fig. 1 Length frequency distributions of fish used in computing length relationships.
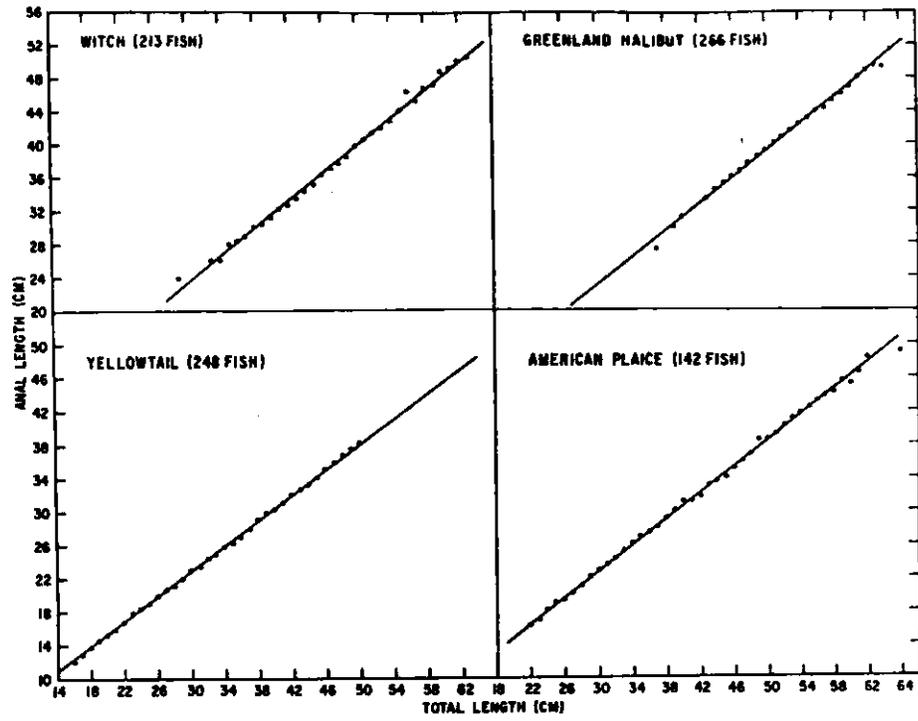
Fig. 2. Linear regressions of "total" length on "anal" length for four species of commercial flatfishes.