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Shrimp Abundance Indices from the French Fisheries off East and West Greenland

by

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A multiplicative model (Laurec and Fonteneau, 1979) was used to analyze the CPUE data available for the French fisheries directed at shrimp off East and West Greenland.

Data

Catch and effort data were available for the period 1981-1987 for the East Greenland fishery and since 1979 for the West Greenland area (1983 and 1984 missing). These are given in Tables 1 and 2 respectively.

The fleet working in East Greenland over the period 1981-1986 was composed of four vessels (OTB-2, TC 6.7) but the actual number of vessels present in the area ranged between 1 and 3 In 1987, the data from only one vessel were available. Having not previously taken part in this fishery, it was associated in the analysis to a similar vessel on the basis of the vessel characteristics and efficiency.

The analysis of catch rates for the West Greenland fishery was based on data from one vessel even if two were present in the last two years.

Results

a) East Greenland (Table 3)

Whereas the monthly effect appears to be weak, the vessel component is much more variable. There is no apparent relation between catch rates and the horse-power, in this case. Over the period 1981-1986, the abundance indices show little variation from year to year but with a decreasing trend (Fig. 1). The marked increase of the 1987 standardized catch rate must be considered with caution since only one vessel data were available.

b) West Greenland (Table 4)

The monthly effect, as in East Greenland, is not significant. There is an increasing trend in the standardized catch rate over the period 1979-1987 associated with a greater variability in the last three years.

Reference

A. Laurec and A. Fonteneau, 1979 - Estimation de l'abondance d'une classe d'âge, utilisation des CPUE de plusieurs engins en différentes zones et saisons. ICCAT, Recueil des doc. scient. Vol VIII (SCRS - 1978) No. 1 Tropical SPP : 79-100.

Table 1. East Greenland input data. (Effort in hour, CPUE - kg/hour.)

Year	Vessel	Data	Month			
			March	April	May	June
1981	A	CPUE				99
		Effort				688
	B	CPUE		433	261	144
		Effort		157	522	257
1982	D	CPUE		216	264	185
		Effort		331	563	238
1983	A	CPUE			50	99
		Effort			2	52
	B	CPUE		165	254	162
		Effort		248	245	206
1984	A	CPUE				42
		Effort				53
	B	CPUE	100	302	216	
		Effort	3	515	273	
	C	CPUE	217	299	197	
		Effort	197	529	244	
1985	A	CPUE	13	22	70	114
		Effort	7	19	2256	1620
	B	CPUE		342	299	219
		Effort		257	402	137
1986	A	CPUE		21	77	101
		Effort		24	308	30
	B	CPUE	178	258	254	179
		Effort	15	502	775	245
	C	CPUE	476	259	297	
		Effort	27	282	296	
1987	B'	CPUE		358	365	
		Effort		273	395	

Vessel B' has the same characteristics as Vessel D and has been considered as Vessel B in the analysis.

Table 2. West Greenland input data. (Effort in hour, CPUE - kg/hour.)

Year	Data	Month June	July	August	September
1979	CPUE		241	178	155
	Effort		476	533	268
1980	CPUE		285	243	237
	Effort		273	541	162
1981	CPUE	291	350	330	
	Effort	22	601	73	
1982	CPUE	235	256	324	
	Effort	50	614	549	
1985	CPUE			333	347
	Effort			264	358
1986	CPUE		568	770	
	Effort		264	548	
1987	CPUE		474	547	
	Effort		441	193	

Table 3. East Greenland - results of the analysis.

Abundance indices

1981	1982	1983	1984	1985	1986	1987
180.5	157.7	132.1	164.3	188.4	167.4	249.7

Month Effect

March	April	May	June
0.86	1.10	0.97	1.09

Vessel Effect

A	B/B'	C
0.45	1.42	1.57

Table 4. West Greenland - results of the analysis.

Abundance indices

1979	1980	1981	1982	//	1985	1986	1987
183.5	238.0	323.5	264.3		337.1	642.2	458.9

Month Effect

June	July	August	September
0.89	1.07	1.09	0.96

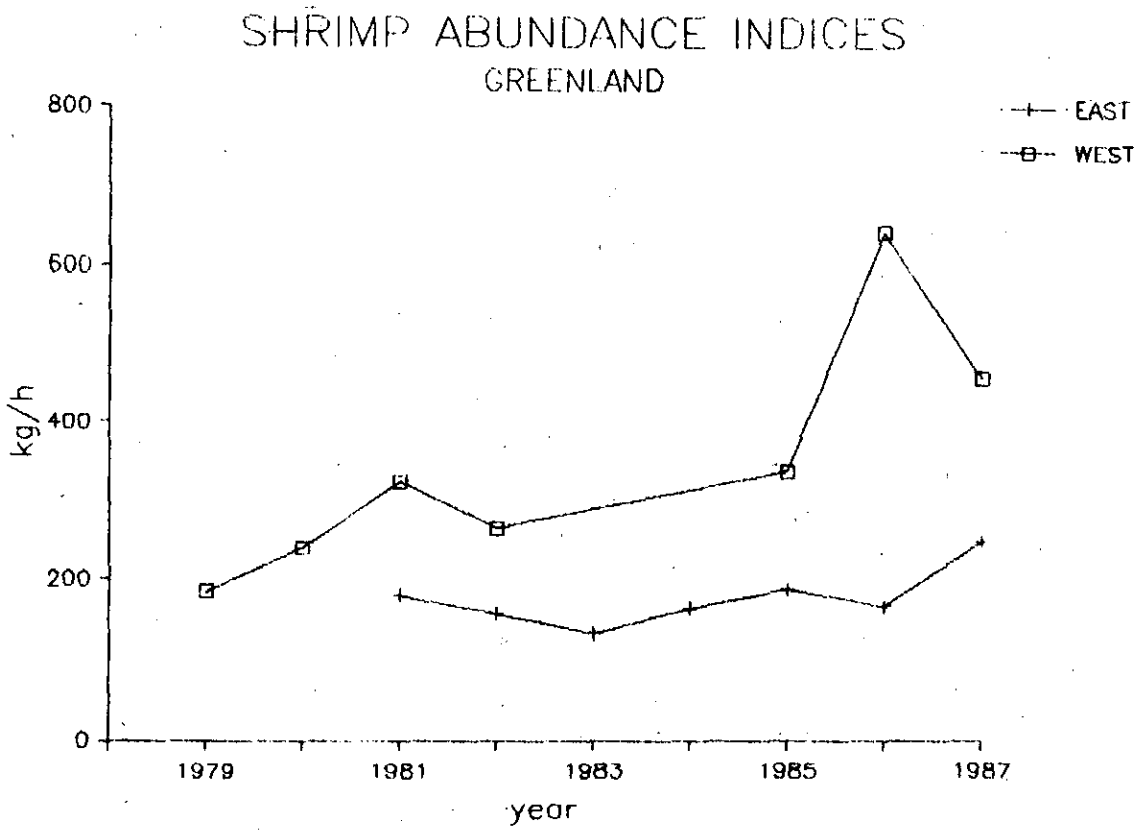

Fig. 1. Shrimp abundance indices from French fisheries off Greenland.