

Northwest Atlantic



Fisheries Organization

Serial No. N1203

NAFO SCR Doc. 86/81

SCIENTIFIC COUNCIL MEETING - JUNE 1986

Biomass and Abundance Estimates for Atlantic Wolffish (*Anarhichas lupus* L.)  
and Spotted Wolffish (*Anarhichas minor* Olafson) in NAFO Subarea 1 from  
Stratified-Random Bottom Trawl Survey Results, 1982-1985

by

J. Messtorff

Bundesforschungsanstalt für Fischerei, Institut für Seefischerei  
D-2850 Bremerhaven, Federal Republic of Germany

Materials and Methods

The survey estimates for Atlantic wolffish and Spotted wolffish are based on catches obtained from surveys especially designed according to the distribution of cod off West Greenland. Wolffishes, however, are known to be distributed considerably further north than the northern border of the survey area (67°N). Consequently the survey results only deal with the stock components of wolffishes inhabiting the offshore areas of Subarea 1 south of 67° north latitude. All calculations are based on the same survey design and trawl parameters as used for cod in Subarea 1 (HORSTED *et al.*, 1985)

Results

For Atlantic wolffish the survey results (Table 1 and Fig. 1A and 2A) indicated a drastic decline (75%) in biomass from 28,000 tons in 1982 to only 7,000 tons in 1984. The biomass estimate for 1985 remained at the low level of the preceding year. Abundance also declined (55%) during the same period from 24 million to 11 million fish. The abundance estimate for 1985, however, indicated an increase to about the level of 1983 by 5 million fish due to a higher abundance of small fish below commercial size.

Biomass and abundance levels of spotted wolffish (Table 1 and Fig. 1B and 2B) were observed to be considerably lower in the area surveyed but also revealed a continuing decline especially of the biomass from 1982 to 1985.

However, it seems unlikely that the offshore commercial trawler fishery exerting a relatively low and even decreasing level of fishing effort during the same period could have significantly contributed to the decline in wolffish biomass and abundance as observed from surveys.

Reference

HORSTED, Sv. Aa. *et al.*, 1985. Status of Subarea 1 Cod and the Fisheries. NAFO SCR Doc. 86/55.

Table 1. Wolffishes in Subarea 1: bottom-trawl survey results, 1982-85.

Year	Cruise No.	Weighted Mean catch (kg/30')	Biomass estimate (tons)	Mean density (t/nm <sup>2</sup> )	Confidence interval (± %)	Weighted mean catch (N/30')	Abundance estimate (Nx10 <sup>-3</sup> )	Mean density (N/nm <sup>2</sup> )	Mean weight (kg)
<u>Atlantic wolffish (<i>Anarhichas lupus</i>)</u>									
1982	WH 55	38.021	28,257	1.423	32.0	32.784	24,365	1,227	1.160
1983	WH 62	17.944	13,336	0.671	32.3	21.897	16,274	819	0.819
1984	AD137	9.381	7,066	0.351	25.7	14.620	11,013	547	0.642
1985	WH 71	10.060	7,578	0.376	27.3	20.934	15,769	783	0.481
<u>Spotted wolffish (<i>Anarhichas minor</i>)</u>									
1982	WH 55	12.426	9,235	0.465	40.5	2,414	1,794	90	5.148
1983	WH 62	8.389	6,235	0.314	41.6	1,359	1,010	51	6.173
1984	AD137	5.374	4,048	0.201	31.3	1,093	823	41	4.919
1985	WH 71	2.751	2,072	0.103	37.8	0.952	717	36	2.890

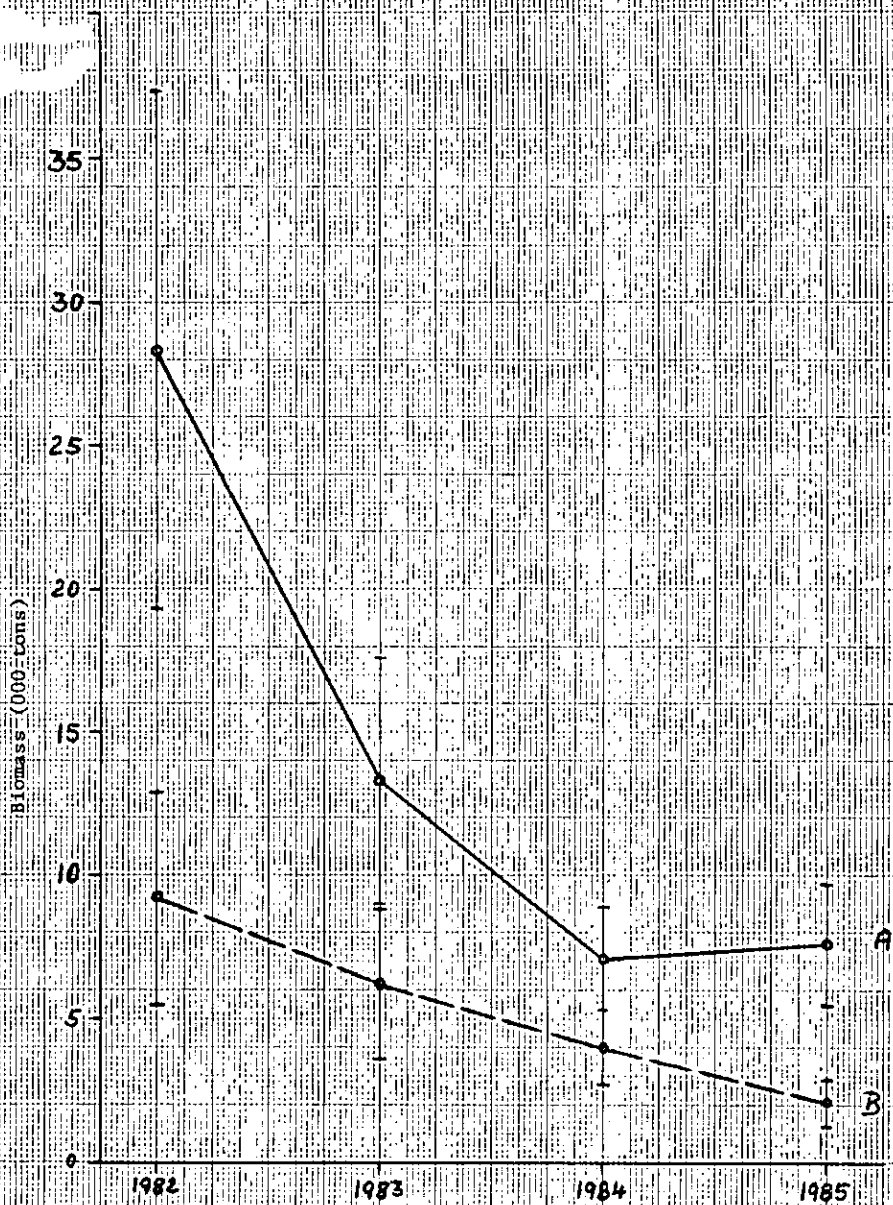


Fig. 1. Wolfishes in Subarea 1: trends in survey biomass estimates, 1982-85, for Atlantic wolfish (A) and Spotted wolfish (B).

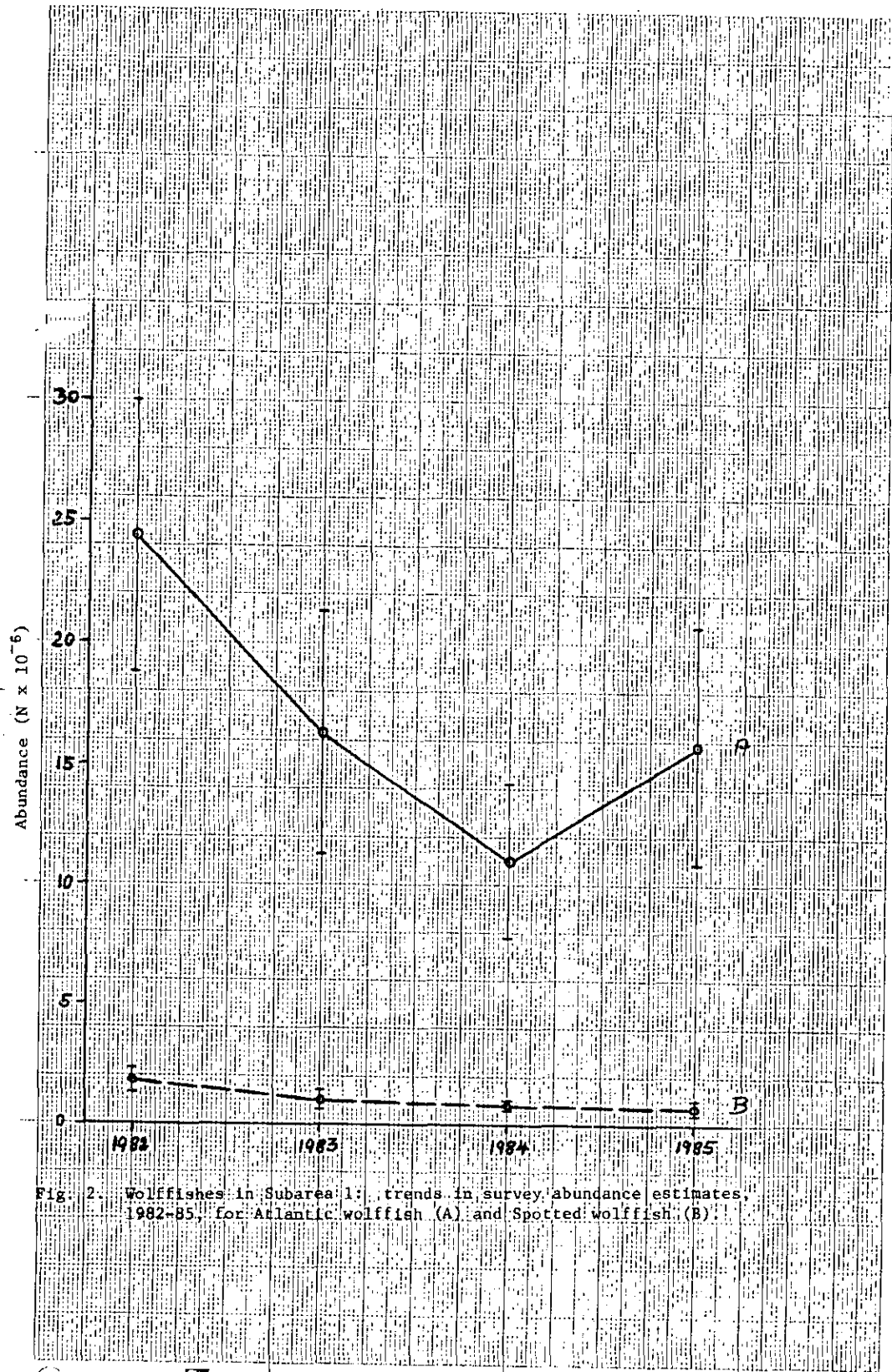


Fig. 2. Wolffishes in Subarea 1: trends in survey abundance estimates, 1982-85, for Atlantic wolffish (A) and Spotted wolffish (B).