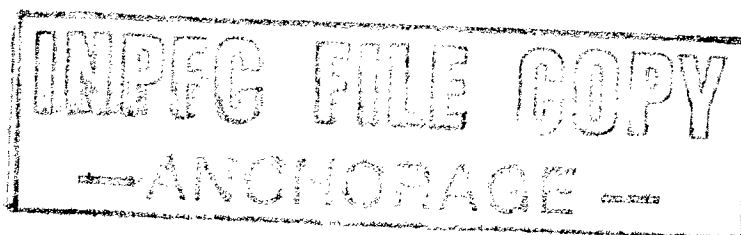


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INPFC DOCUMENT
Ser. No. 2902
Rev. No. _____

東部ベーリング海大陸棚における
秋季スケトウダラ底びき定点調査報告

Report of pollock survey by commercial vessels in the
eastern Bering Sea, August-September, 1984



手島和之・岡田啓介

Kazuyuki Teshima and Keisuke Okada

1985年 9月

September 1985

水産庁

Fisheries Agency of Japan

東部ベーリング海大陸棚における秋季 スケトウダラ底びき定点調査報告

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1976年以降、毎年継続されているスケトウダラ底びき定点調査は、1984年も同様に、すり身母船に付属する独航船（以東式底びき網漁船；5隻、スターン・トロール漁船；2隻）により8月12日から9月4日の間（表1）東部ベーリング海大陸棚上に設定された153定点（図1）において実施された。本報告はその調査結果をとりまとめたものである。

1. 定点別スケトウダラ漁獲量（図2）

1984年では、魚群密度は概して中央部水域（Area SC, NC）で高く、その両側水域（Area SE, NW）で低い傾向を示した。すなわち、1983年（山口・岡田1985）と比較すると、1984年では、Area SCとArea NCの主として100～150 m水深帯に3トン以上の比較的高密度の魚群の出現が認められた。特に、Area NCの南部水域とArea SCの中央部及び南部水域に10ト

本報告の引用は下記に従うこと：

手島和之・岡田啓介 1985. 東部ベーリング海大陸棚における秋季スケトウダラ底びき定点調査（北太平洋漁業国際委員会提出文書）. 9頁. 水産庁, 東京.

This paper may be cited in the following manner:

Kazuyuki Teshima and Keisuke Okada 1985. Report of pollock survey by commercial vessels in the eastern Bering Sea, August-September, 1984. (Document submitted to the International North Pacific Fisheries Commission) 9p. Fisheries Agency of Japan, Tokyo 100 Japan.

ン以上の高密度魚群が出現した。一方、1984年のArea SEとArea NWでは、1983年にみられた10トン以上の高密度魚群は認められず、主に2トン以下の魚群が分布していた。

2. 定点別スケトウダラの平均尾叉長(図3)

全調査水域を通し昨年に比較して大型化の傾向を示した。すなわち、1983年には、Area NW, NC及びSCの3海区は平均尾叉長30～35cm及び35～45cmの大きさのスケトウダラによって占められていた。しかし、1984年には30～35cmの小型魚はほとんどみられず、35～40cmの中型魚の外に40cm以上の魚群が出現した。一方、Area SEでは、1983年に35cm以上から成る魚群がみられたが、1984年には35～40cmの中型魚はほとんど姿を消し、40cm以上の大型魚が出現した。特に、80m以浅の水域において45cm以上の大型魚も多くみられた。

3. CPUEの経年変化(図4)

1984年のCPUEは、1983年と比較すると、Area SCとArea NCで増加し、Area SEとArea NWで減少した。1976年から1984年の9年間では、CPUEはArea SE, NCでは低下、Area SC, NWでは増加傾向を示した。

4. 体長組成(図5)

1979年と1980年に多数みられた20cm以下の小型の個体が1981年以降急激に減少し、1983年以降全く出現していない。また、1979年以降、体長組成は大型化の傾向を示した。

5. 年齢組成(図6)

1980年までは、1～2歳の若齢魚が多くみられた。特に、1979年と1980年には1歳魚の出現が顕著であった。しかし、1981年以降、若齢魚の出現がほとんどみられなくなった。

6. 資源量(表2)

相対資源重量(RPW)とスターン・トロール漁船の掃海面積(0.076Km²)とを用いて資源量(BE)を推定した。1976年から1984年までの秋季調査によるスケトウダラの資源量推定値を表2に示した。1984年の資源量推定値は1983年の10,684,825.0トンから38.9%減少して6,533,509.2トンとなった。

文 献

山口関常・岡田啓介、1985. 東部ベーリング海におけるスケトウダラ資源の動向。1984年北洋底魚資源調査研究報告集、29～50. 遠洋水産研究所・清水。

Table 1. Research vessels engaged in multi-vessel trawl survey in 1984.

Fleet name	Research v.	Gross ton	H.P.	Fishing m.	Period	Stn no.
Shikishima maru	#17 Hokko maru	124.54	1,350	DS	8/12-8/18	26
	#15 Seihou maru	124.59	1,350	DS	8/16-8/17	8
Mineshima maru	#5 Ebisu maru	124.79	1,025	DS	8/12-8/18	31
	#51 Mitsu maru	124.60	1,000	DS	8/15	2
Hoyo maru	#51 Yuryo maru	124.97	1,350	DS	8/15-8/24	34
#2 Nisshin maru	#18 Akashi maru	206.38	650	ST	8/19-8/27	37
Soyo maru	#52 Mutsu maru	298.78	1,250	ST	9/1-9/4	20

DS: Danish seine, ST: Stern trawl.

Table 2. Relative population number (RPN), relative population weight (RPW) and biomass (BE) estimated from 1984 fall survey.

Year	RPN ($\times 10^3$)	RPW	BE(ton)
1976	2,932,663	790,251.5	10,398,046.1
1977	2,821,006	833,810.0	10,971,184.2
1978	2,101,661	764,327.4	10,056,939.5
1979	3,159,381	624,401.0	8,215,802.6
1980	4,471,291	996,965.2	13,117,963.2
1981	2,671,128	709,642.8	9,337,405.3
1982	1,670,391	592,271.6	7,793,047.4
1983	2,132,045	812,046.7	10,684,825.0
1984	1,109,729	496,546.7	6,533,509.2

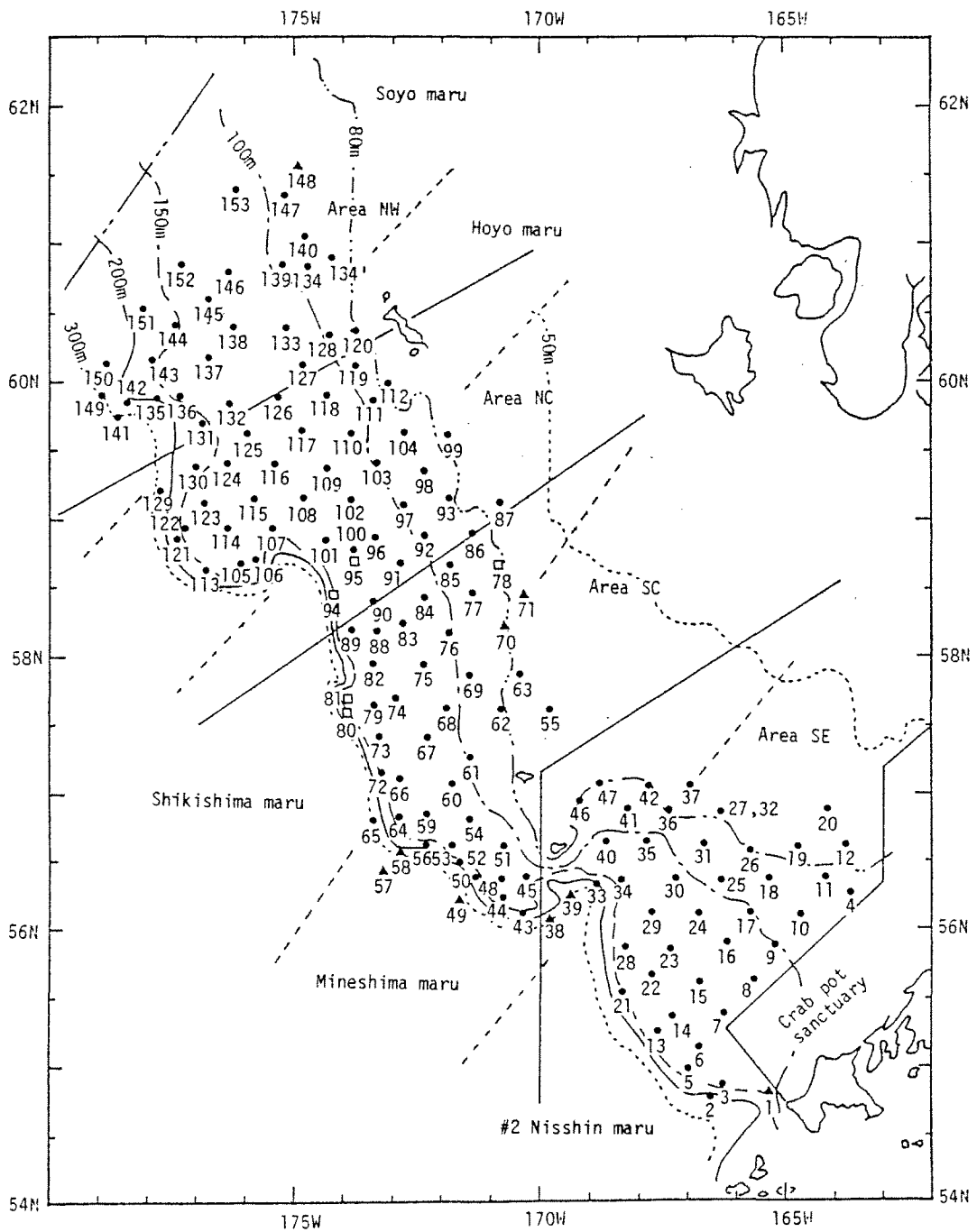


Fig. 1. Sampling areas and strata, and stations by fleet during the multi-vessel trawl survey in the eastern Bering Sea, August-September, 1984. ▲; no operation, □; operated, but no pollock catch.

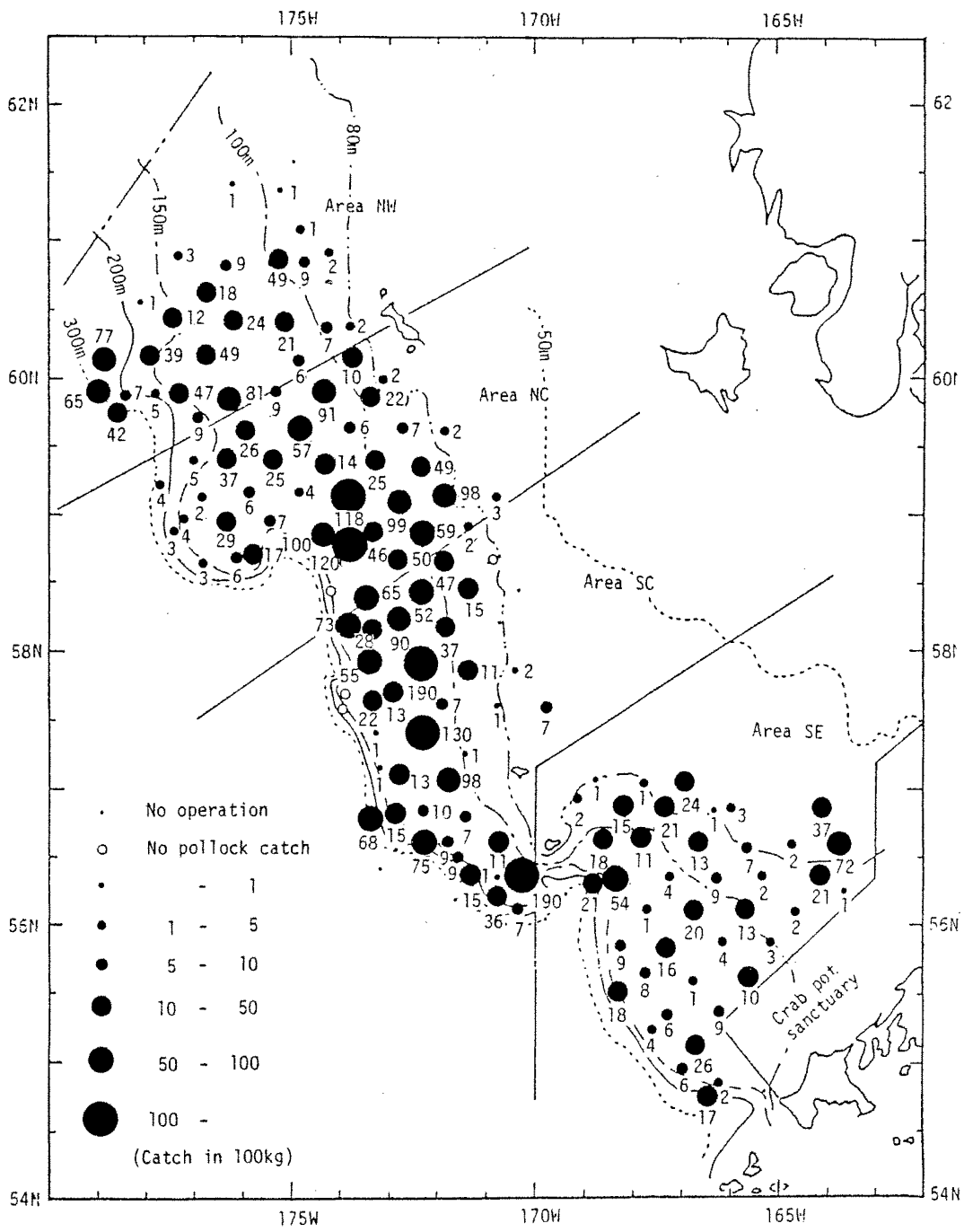


Fig. 2. Pollock catch in 100 kg at each of stations obtained from 1984 survey.

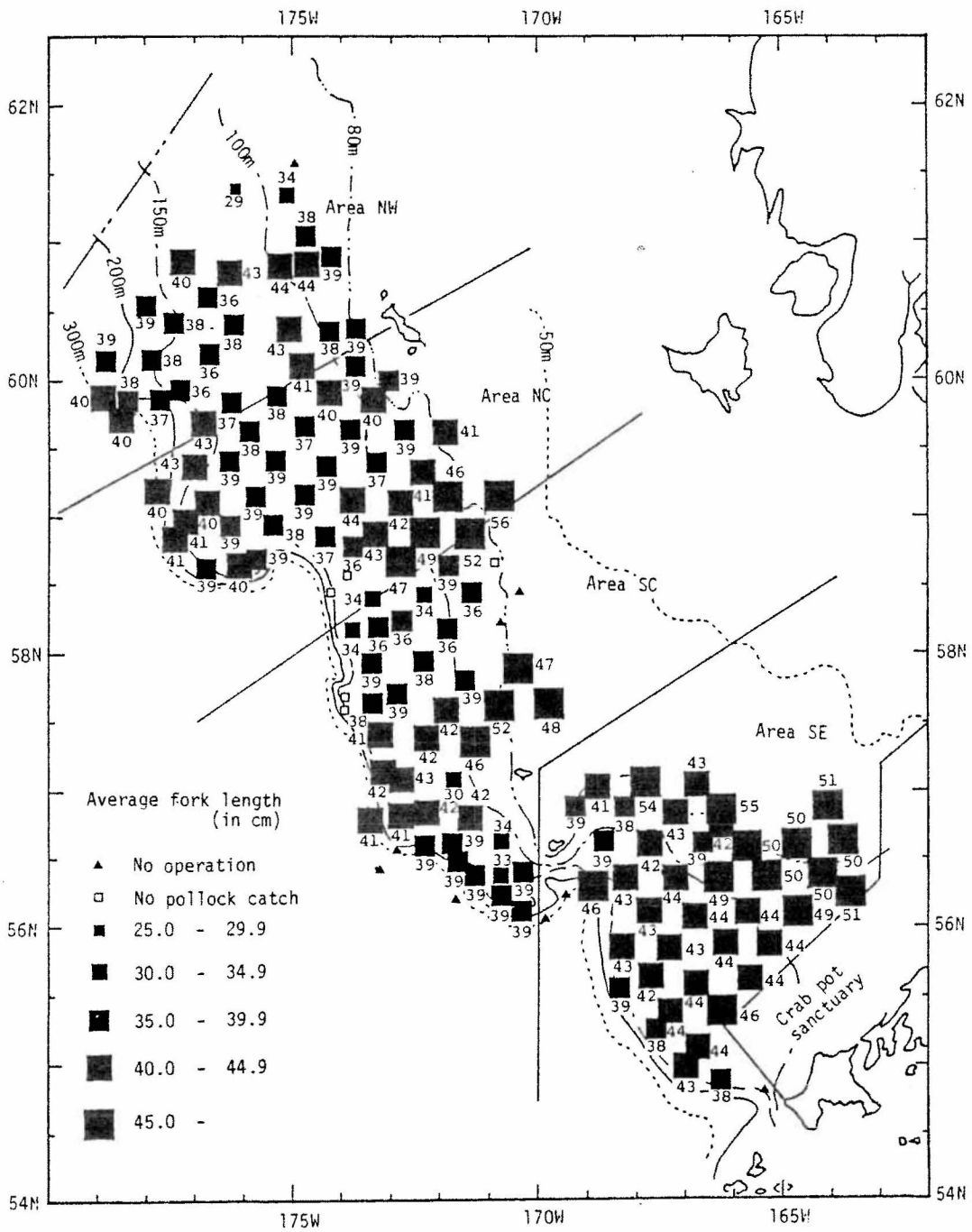


Fig. 3. Average pollock fork length in cm at each of stations obtained from 1984 survey.

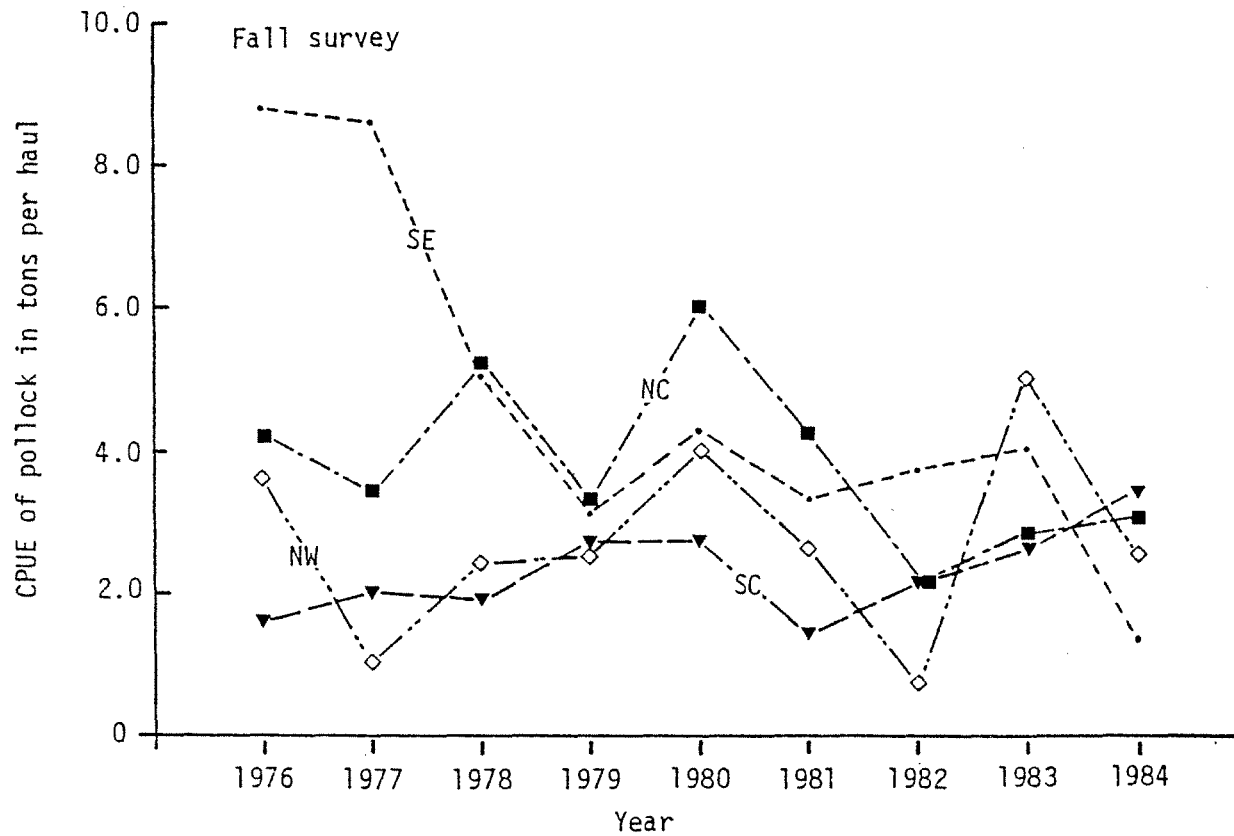


Fig. 4. CPUE of pollock in tons per haul by survey area in June, 1978-1981, 1983 and in August - September, 1976 - 1984.

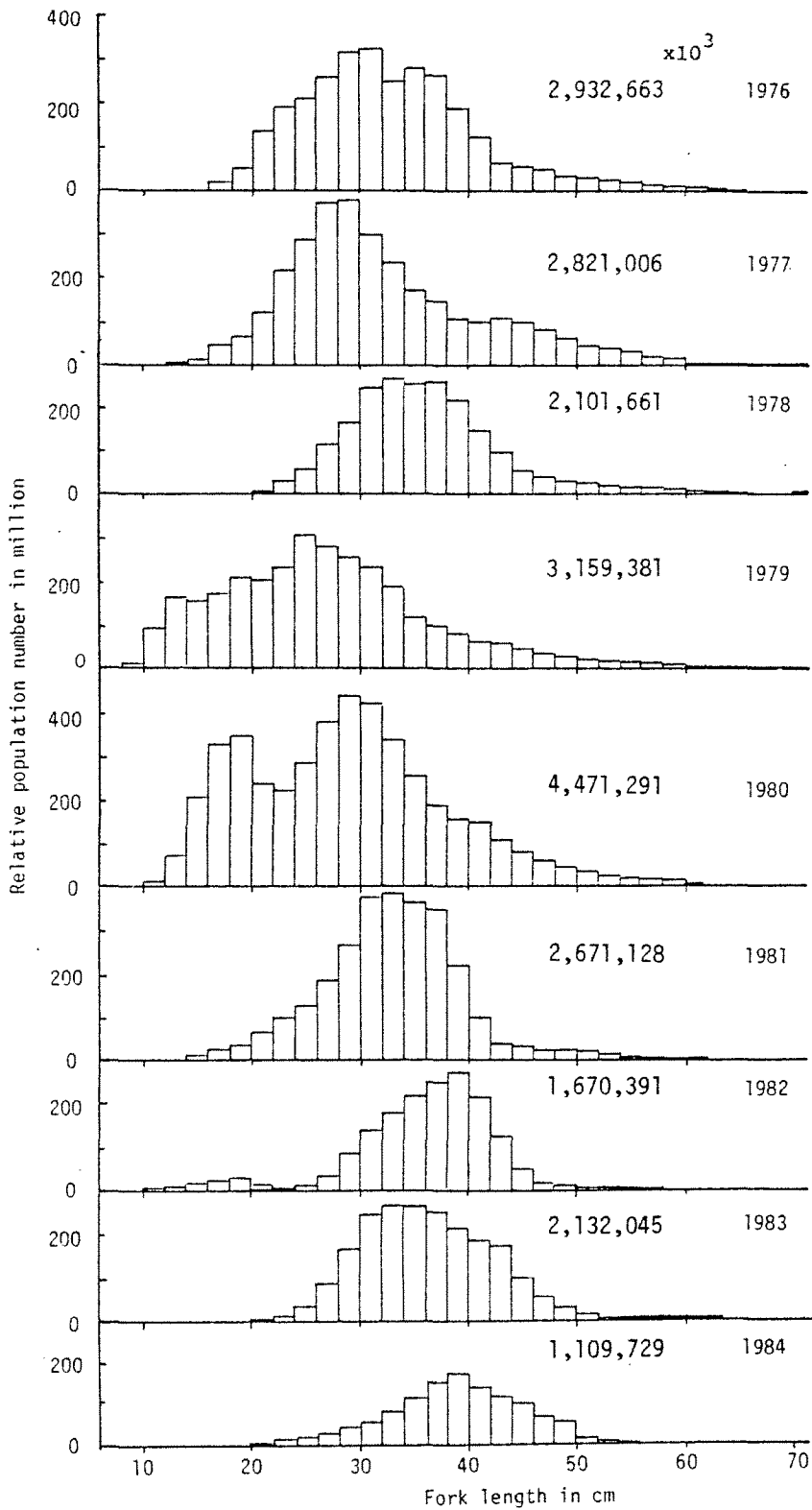


Fig. 5. Annual change in relative population number by two-centimeter length interval during 1976 to 1984.

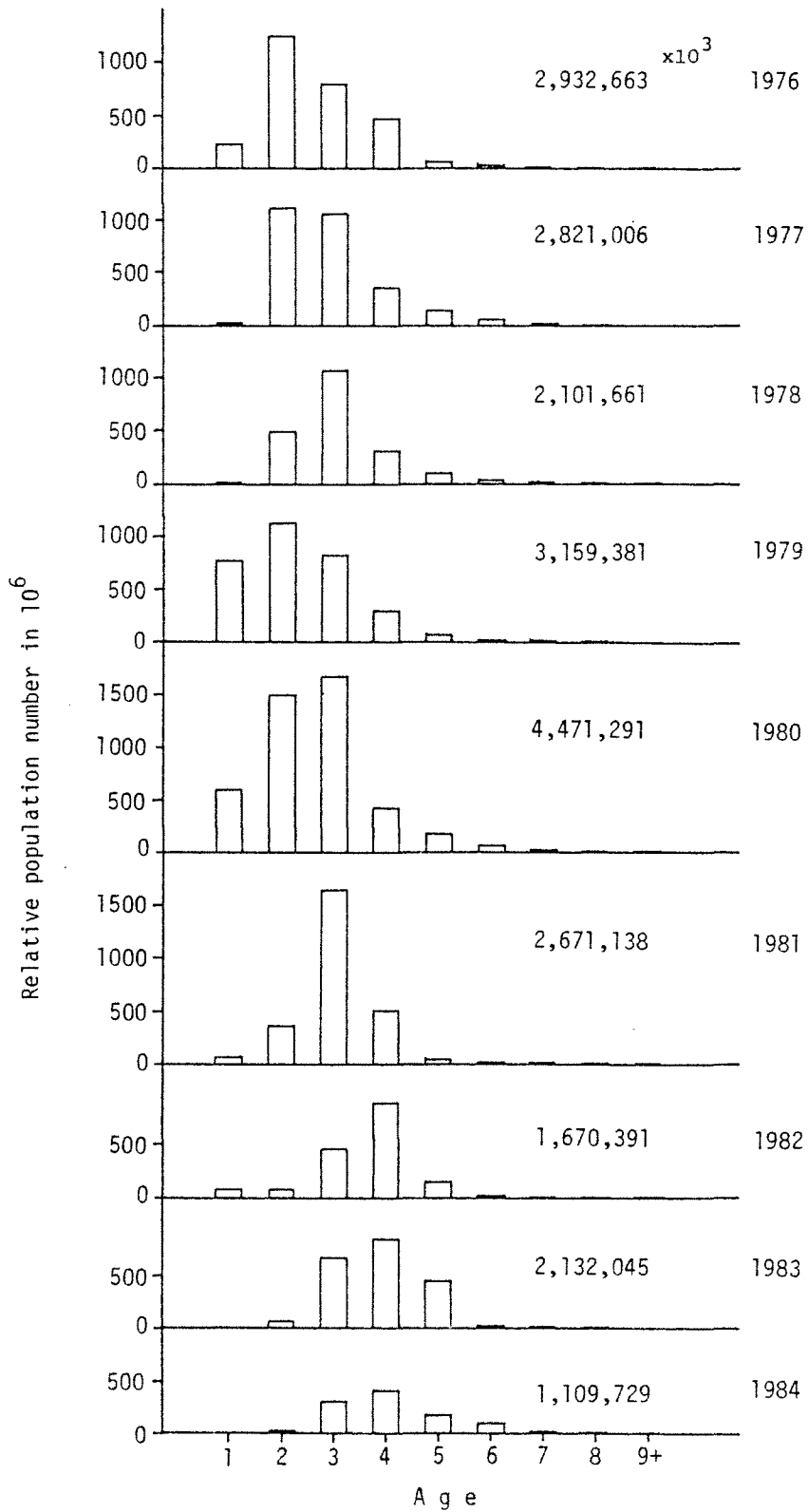
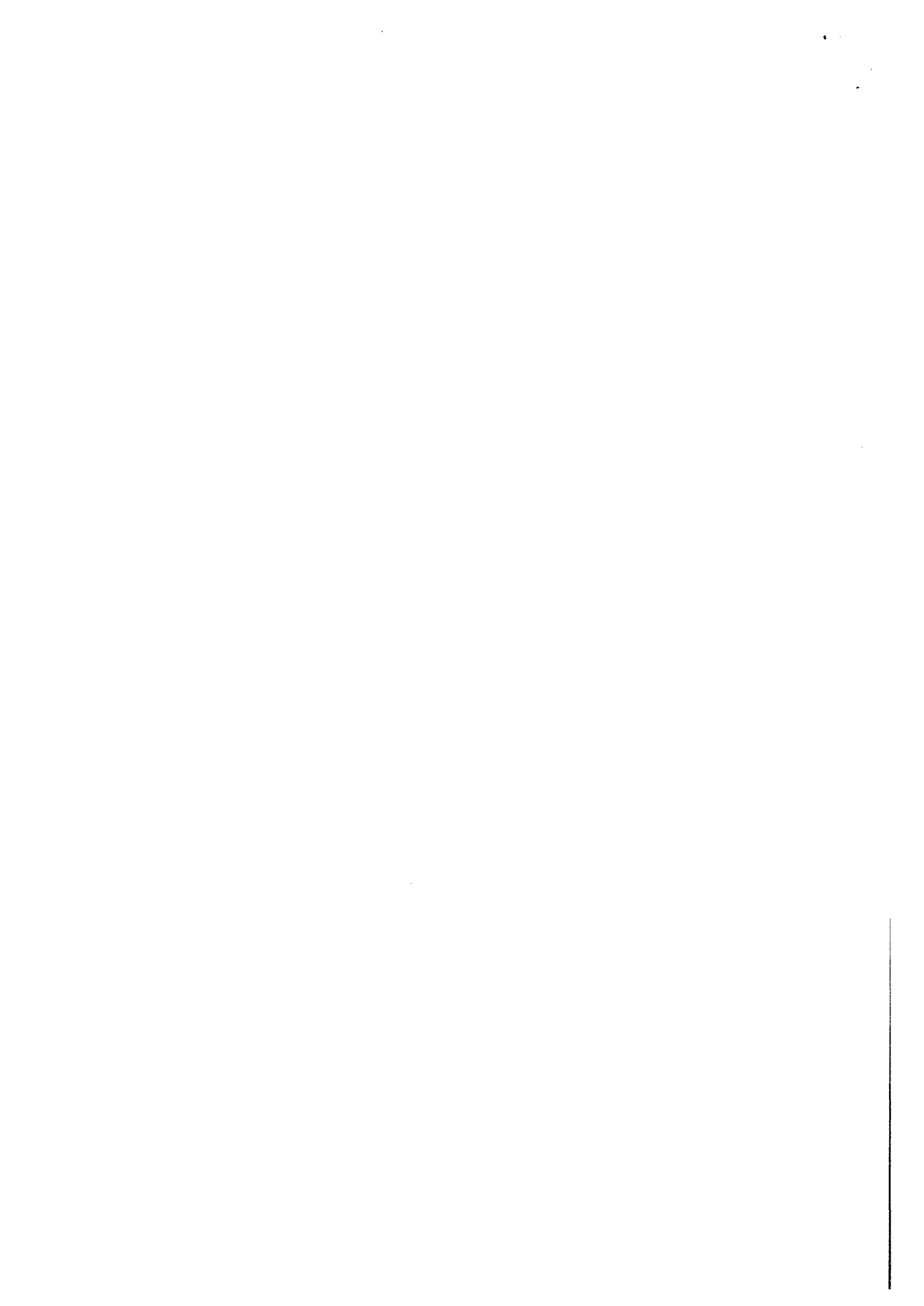


Fig. 6. Annual change in relative population number by age during 1976 to 1984..



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TRANSLATION

REPORT OF POLLOCK SURVEY BY COMMERCIAL VESSELS IN THE
EASTERN BERING SEA, AUGUST-SEPTEMBER 1984

Kazuyuki Teshima and Keisuke Okada

Fisheries Agency of Japan

1985 September

THIS PAPER MAY BE CITED IN THE FOLLOWING MANNER:
Teshima, Kazuyuki, and Keisuke Okada. 1985.
Report of pollock survey by commercial vessels
in the eastern Bering Sea, August-September
1984. (Document submitted to the International
North Pacific Fisheries Commission.) 4 p.
Fisheries Agency of Japan, Tokyo, Japan 100.

The trawl survey for pollock that has been conducted every year since 1976 was also conducted by catcher boats attached to the surimi motherships (5 Danish trawlers and 2 stern trawlers) at 153 previously established stations on the continental shelf of the eastern Bering Sea (Fig. 1) from August 12 to September 4 in 1984 (Table 1). This report summarizes the results of the survey.

1. Catch of pollock by station (Fig. 2)

In 1984, fish density was generally high in the central areas (Areas SC and NC) and low in both adjoining areas (Areas SE and NW). Compared with data for 1983 (Yamaguchi and Okada 1985), fish groups with comparatively high density of 3 t or more, at depths 100 to 150 m in Areas SC and NC were observed in 1984. In particular, fish groups with high density of 10 t or more appeared in the southern portion of Area NC and the central and southern portions of Area NW. On the other hand, fish groups with high density of 10 t or more observed in 1983 were not apparent in Areas SE and NW in 1984, and fish groups were mainly those with density of 2 t and less.

2. Average fork length of pollock by station (Fig. 3)

A trend to larger sizes was shown throughout the survey areas, compared with the previous year. In 1983, pollock with size ranges of 30 to 35 cm and 35 to 45 cm average fork length were found in three Areas (NW, NC, and SC). However, in 1984, small sized pollock in the range of 30 to 35 cm were not observed, though fish groups of 40 cm or more as well as middle-sized fish of 35 to 40 cm were found. On the other hand, fish groups of length 35 cm or more were observed in Area SE in 1983, but middle-sized fish in the range of 35 cm to 40 cm were not observed at all in 1984. However, large sized fish of 40 cm or more were apparent. In particular, many large-sized fish of 45 cm or more in length were observed in waters 80 m and shallower in depth.

3. Yearly fluctuation of CPUE (Fig. 4)

CPUE values for pollock in 1984 increased in Areas SC and NC and decreased in Areas SE and NW, compared with 1983. For the nine years from 1976 to 1984, the CPUEs have decreased in Areas SE and NC and increased in Areas SC and NW.

4. Body length Composition (Fig. 5)

Small sized individuals of less than 20 cm in length were observed plentifully from 1979 to 1980 but decreased drastically in 1981 and 1982, and have not appeared at all in 1983 and 1984. In addition, an increasing trend in body length composition has been observed since 1978.

5. Age composition (Fig. 6)

Up to 1980, young pollock of one to two years of age were observed to be plentiful, and the occurrence of one year old fish was remarkable in 1979 and 1980. However, such strong occurrence of young pollock has not been observed since 1980.

6. Biomass (Table 2)

A biomass estimate (BE) was made using relative population weight (RPW) and the area swept by stern trawlers (0.076 km^2). Biomasses of pollock estimated in fall surveys of 1976 to 1984 are shown in Table 2. Estimated biomass in 1984 was 6,533,509.2 t, a decrease of 38.9% from the 10,684,825.0 t in 1983.

References

Yamaguchi, Hirotsune, and Keisuke Okada. 1985. Trend of pollock stock in the eastern Bering Sea in 1984. Research Report Nos. 29 to 50 on North Pacific groundfish resources in 1984. Far Seas Fisheries Research Laboratory, Shimizu.

TABLES 1 AND 2 AND FIGS. 1 TO 6 ARE IN ENGLISH IN THE JAPANESE DOCUMENT