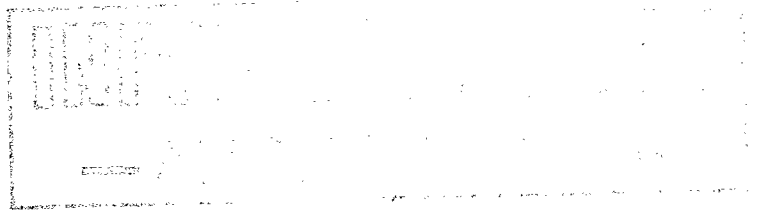


Not to be cited by  
INPFC Document number



1987年夏季の北西太平洋における海況概要

Outline of oceanographic conditions of Northwest  
Pacific during the summer of 1987

INPFC
DOCUMENT
Ser. No. 3186
Rev. No. ....
.....

平松一彦  
Kazuhiko Hiramatsu

1987年 9月  
September 1987  
水産庁  
Fisheries Agency of Japan

この文書を引用する場合は下記による：

平松一彦．1987．1987年夏季の北西太平洋における海況概要．9頁．（第34回INPFC定例年次会議提出文書．1987年10月．カナダ，ヴァンクーバー市）．水産庁．遠洋水産研究所．日本．

〒424 清水市折戸5-7-1



# 1987年夏季の北西太平洋における海況概要

## Outline of oceanographic conditions of Northwest Pacific during the summer of 1987

平松 一彦

(遠洋水産研究所)

### まえがき

1987年夏季における北西太平洋の海況について、例年と同様水温資料により解析を行なった。ここに用いられた水温資料は、主にさけ・ます調査船10隻、さけ・ます母船3隻によって得られたものである。本年も調査期間が短く、北西太平洋を広域的に把握できたのは、6月・7月の2カ月のみであった。観測点数は、6月259点、7月183点であった(Figs. 1, 2)。その他に表面水温資料としては「海況旬報」(気象庁発行)を使用した。北西太平洋におけるさけ・ますの分布・回遊は、Western Subarctic Water, Alaskan Stream および表面水温の影響を受けることが知られていることから、これらの性状に注目して検討した。

### 1. Western Subarctic Water

Western Subarctic Water は、冬季の表層冷却に起因する寒冷水で、カムチャッカ半島、千島列島の東方域を中心にして北西太平洋に広く分布している。そしてこの寒冷水が、冬季から夏季にかけて、東方および南方に張出してくるのがこの海域の特徴である。特に例年 $165^{\circ}\text{E}\sim 170^{\circ}\text{E}$ 付近で寒冷水の南方張出しが見られ、これはコマンドルスキー冷水舌と呼ばれている。ここでは例年と同様100 m層の $3^{\circ}\text{C}$ 以下の冷水をこの水系として取り扱い、その南方および東方への張出しからこの冷水系の勢力について検討した。

6月(Fig. 3) :  $3^{\circ}\text{C}$ 以下の冷水が $165^{\circ}\text{E}\sim 170^{\circ}\text{E}$ において $42^{\circ}30' \text{N}$ まで南下しており、 $2^{\circ}\text{C}$ 以下の冷水も $43^{\circ}\text{N}$ 付近に及んでいる。これはWestern Subarctic Waterの南方張出しが昨年同様強かったことを示している(Fig. 5)。

一方東方への張出しも、 $3^{\circ}\text{C}$ 以下の冷水が $46^{\circ}\text{N}\sim 50^{\circ}\text{N}$ において $180^{\circ}$ 付近まで及んでおり、かなり強かったことを示している。

7月(Fig. 4) : コマンドルスキー冷水舌は7月においてもその形状を残しており、6月同様南方張出しが強かったことを示している。

東方への張出しは観測点が少ないため明らかではないが、 $180^{\circ}$ 付近まで及んでいたものと考えられる。

## 2. Alaskan Stream

Alaskan Stream は、アラスカ湾域よりアリューシャン列島南方沿いを西行する相対的高温水である。この流れの勢力を把握するひとつの方法として、アリューシャン列島南方沿いにみられる100 m層の4℃以上の水系について検討した。

6月 (Fig. 3) : 本年はアリューシャン列島南方の観測が少ないため、この時期のAlaskan Streamの勢力については明らかではない。しかし174°E付近にまで4℃以下の水が見られることから、勢力はあまり強くなかったものと考えられる。

7月 (Fig. 4) : 4℃以上の水は少なくとも174°E付近まで見られ、Alaskan Streamの勢力はほぼ平年並であったと考えられる。

Fig. 6に6月におけるAlaskan Streamの張出しの年変動を示す。本年は6月は明らかでないため、参考として7月の値を示してある。

## 3. 表面水温

Fig. 7に本年6月、7月の表面水温平年偏差図を示す。平年値とは過去30年間(1956~1985)の各月毎の平均値である。

6月の北西太平洋の表面水温はほぼ平年並であった。しかし、7月にはいると、40°N~45°Nにかけて平年より1~2℃低温となっている。

以上に述べた1987年夏季の北西太平洋の海況概要は次のように要約される。

1. Western Subarctic Waterの南方および東方への張出しは、6月、7月とも平年より強かった。
2. Alaskan Streamの西方張出しは、ほぼ平年並であった。
3. 表面水温は6月はほぼ平年並、7月は40°N~45°Nで平年より低温であった。

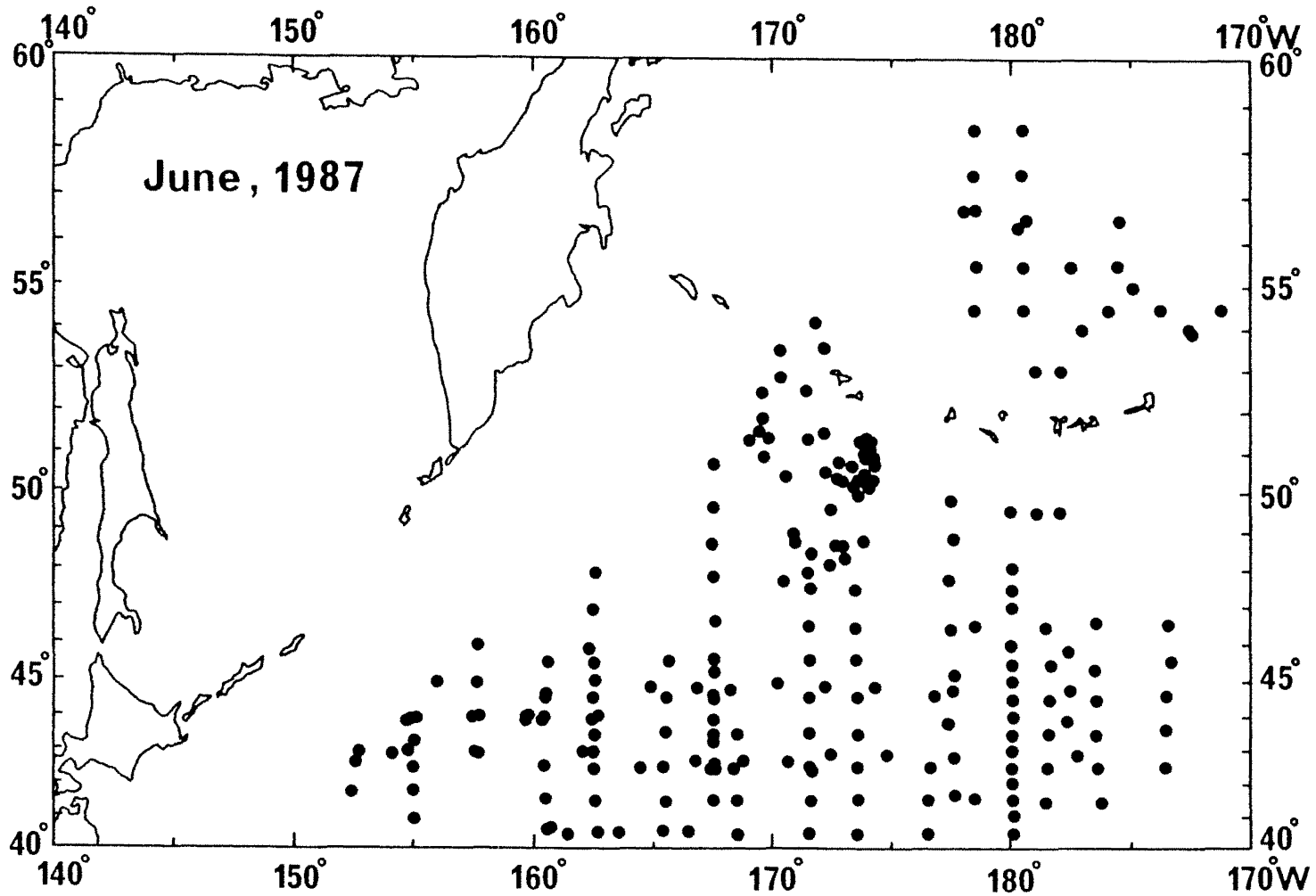


Fig.1 Locations of oceanographic stations (June,1987)

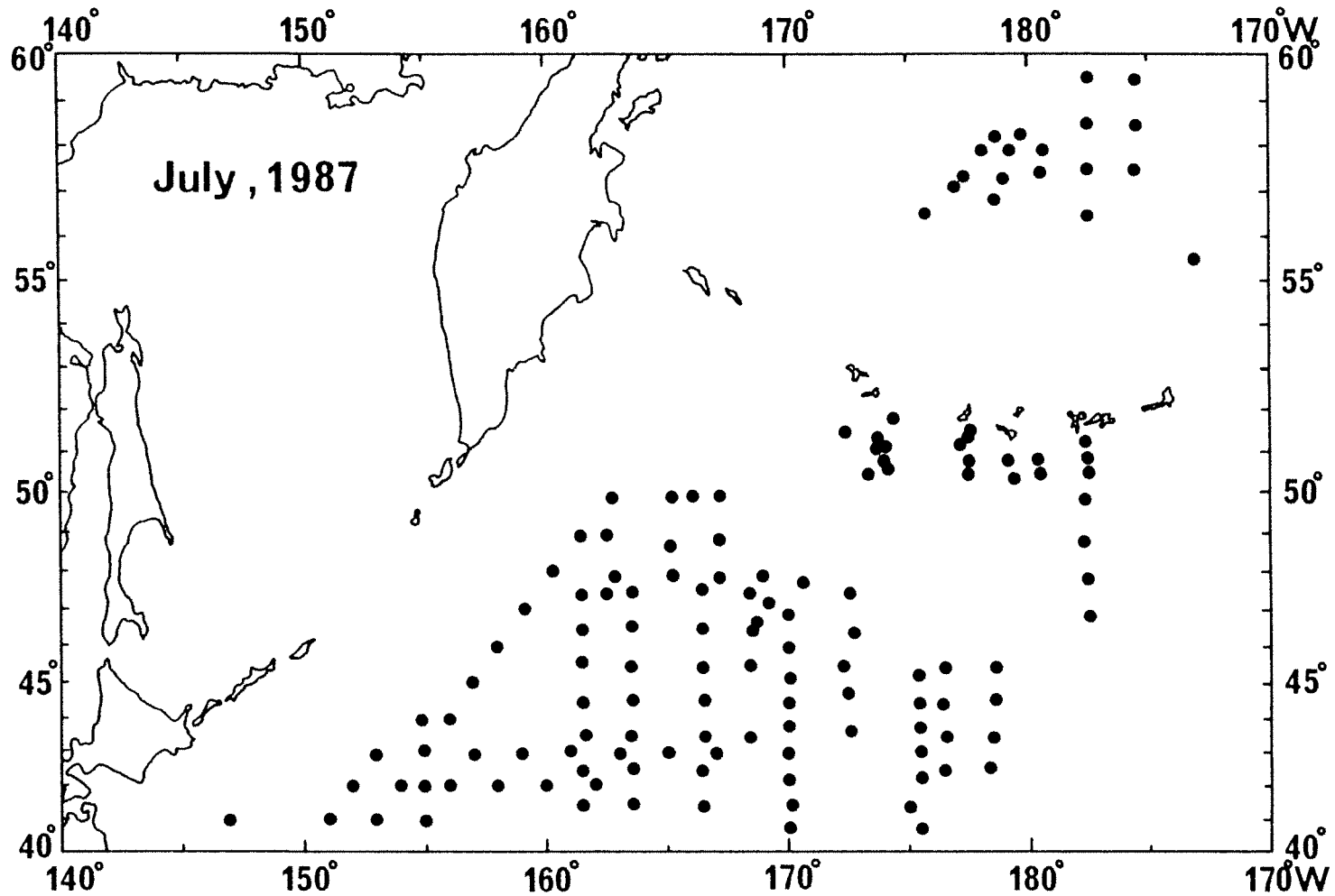


Fig.2 Locations of oceanographic stations (July,1987)

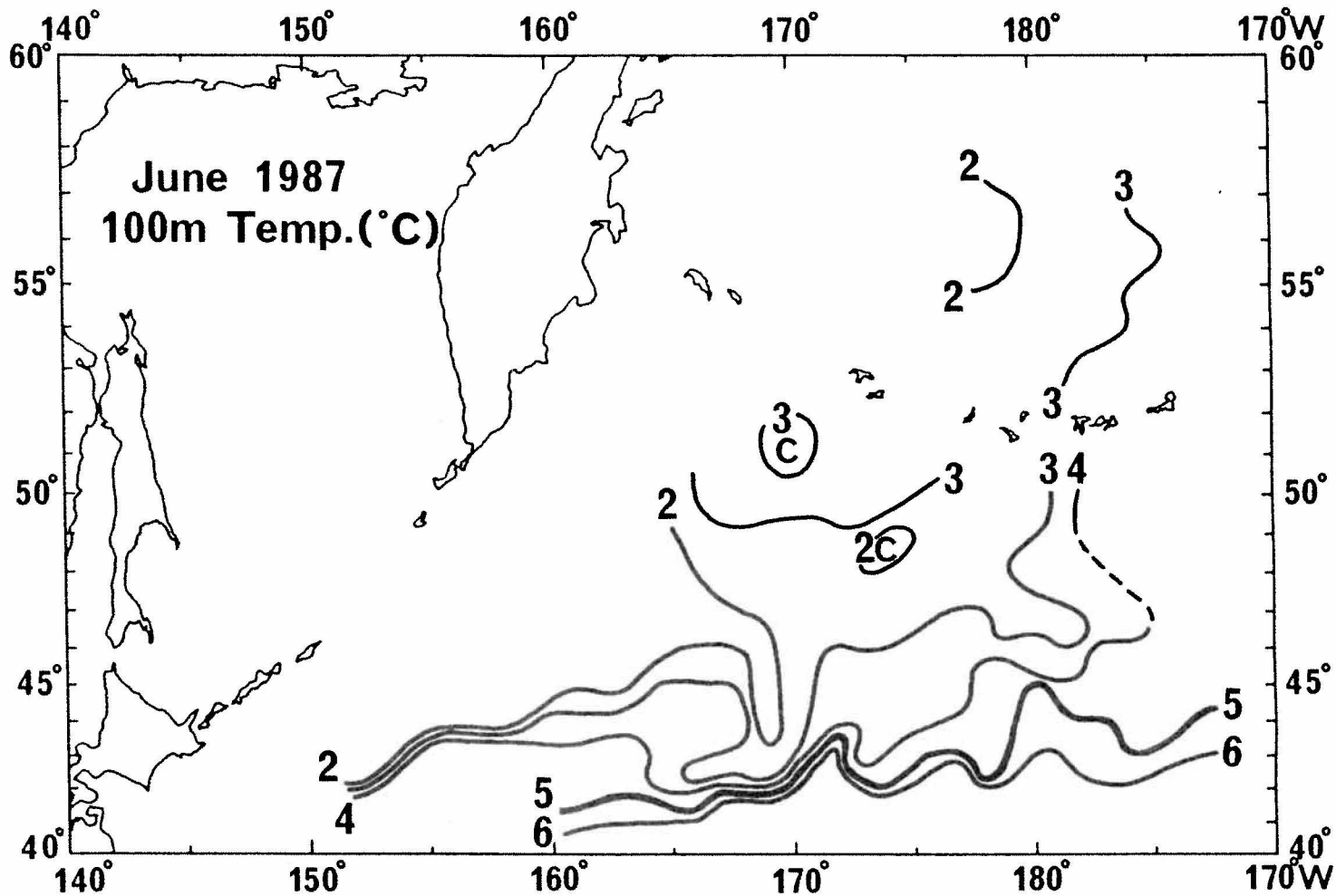


Fig.3 Temperature distribution at 100m layer in June,1987

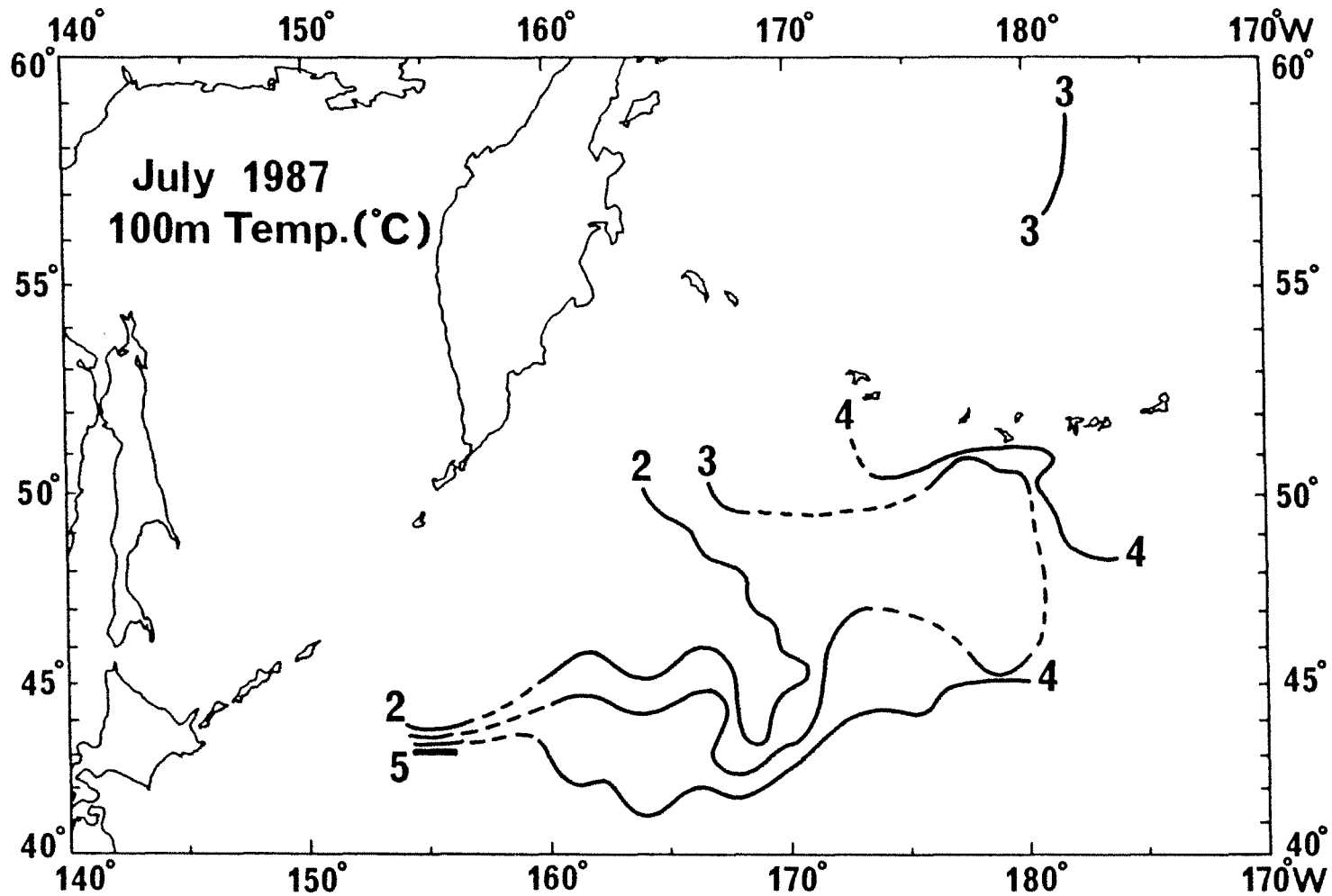


Fig.4 Temperature distribution at 100m layer in July,1987



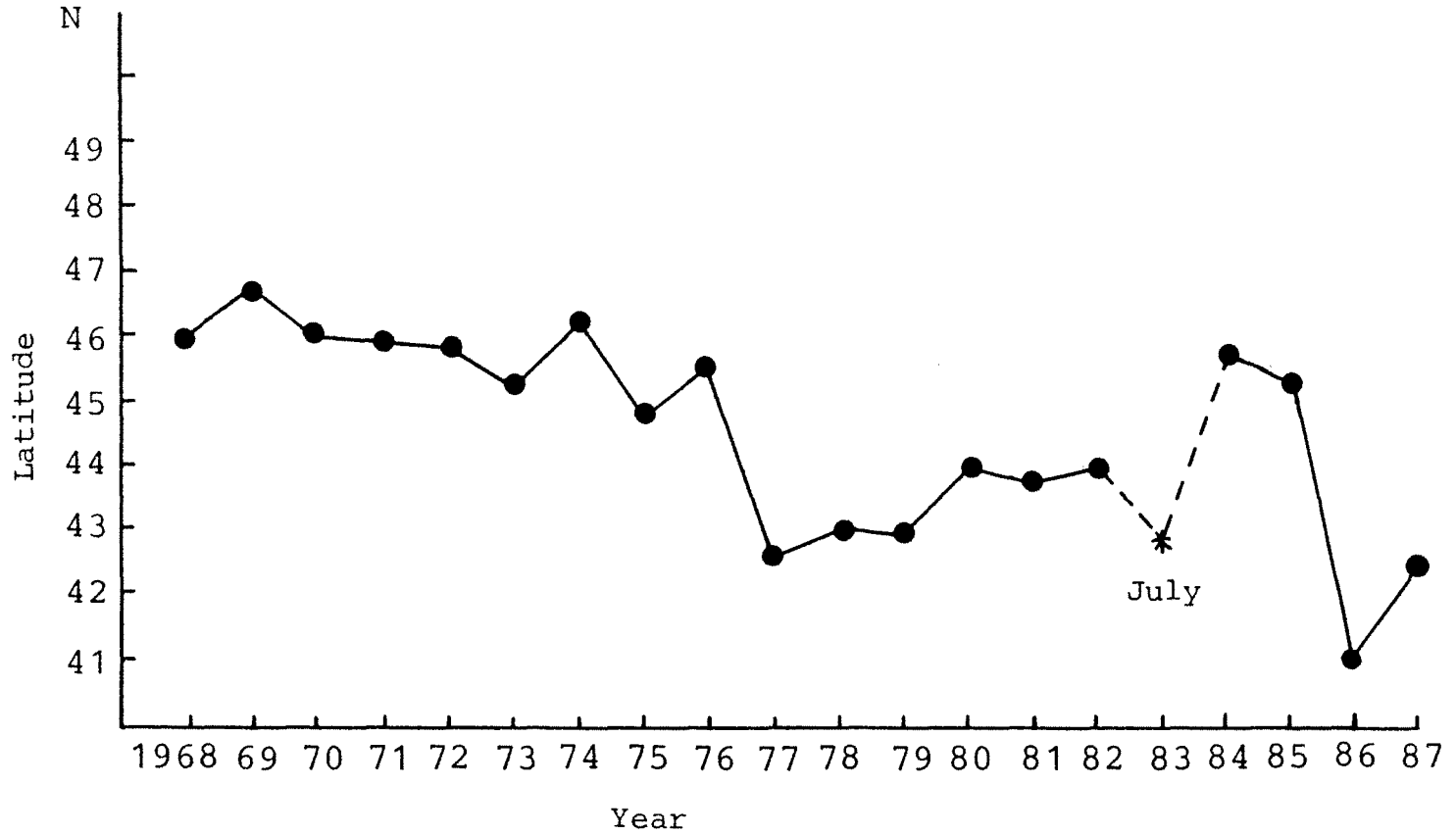


Fig. 5 Annual fluctuation of southward extension of Komandrskie tongueshaped cold water in June indicated 3°C isothermal at 100m depth.

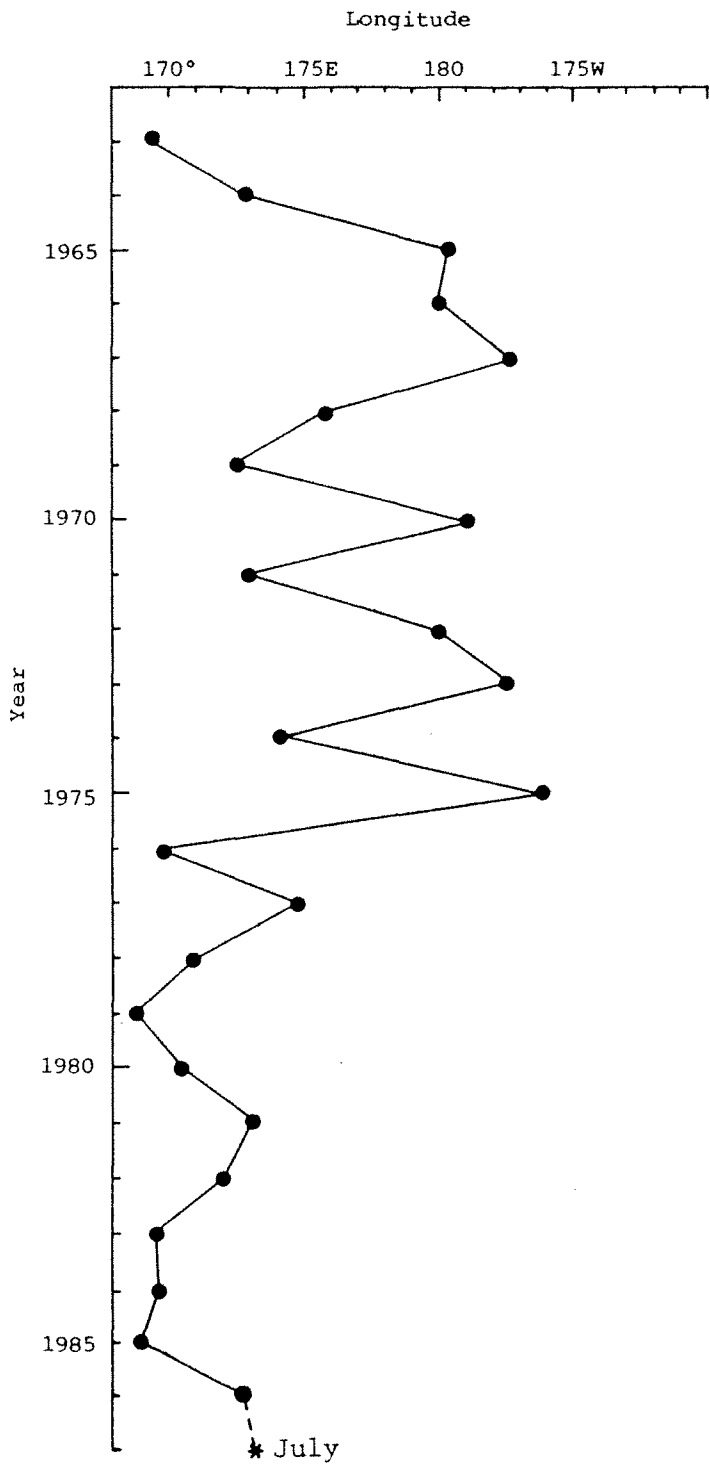


Fig.6 Annual fluctuation of the extension of Alaskan stream in June indicated by 4°C isotherm at 100m depth.

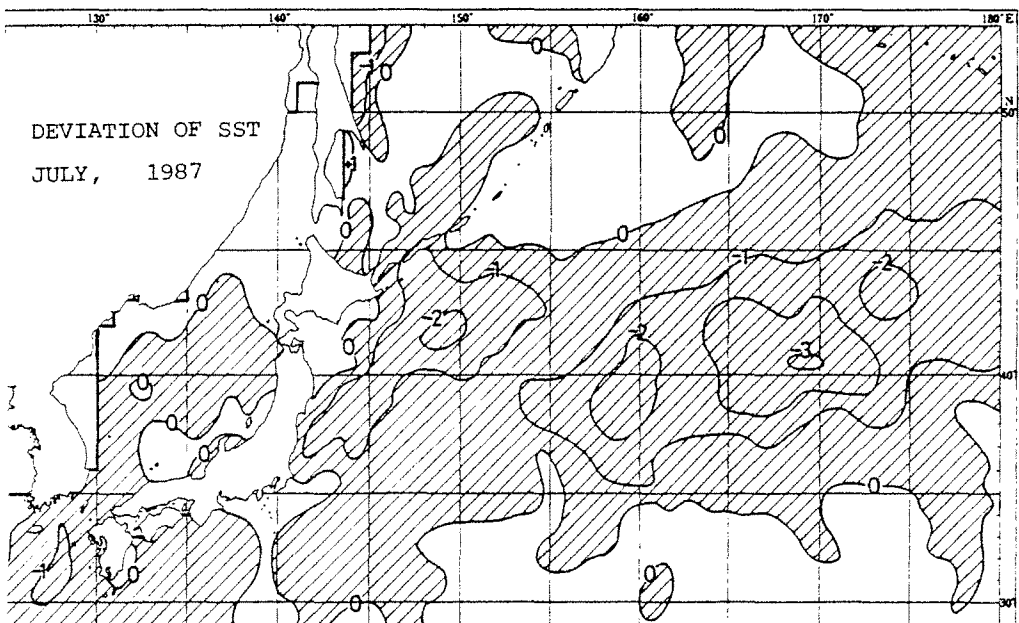
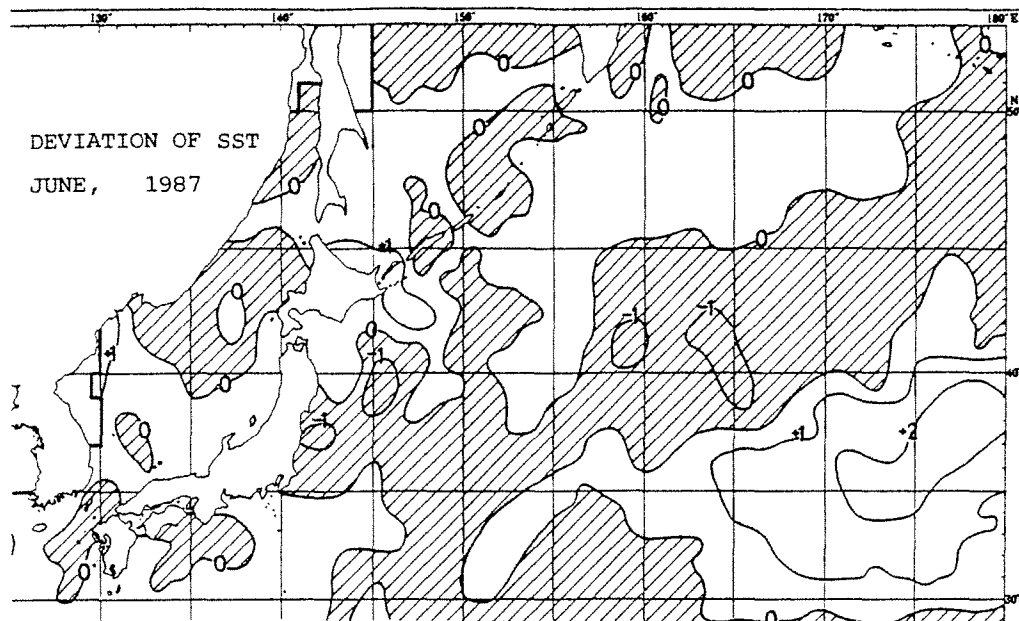
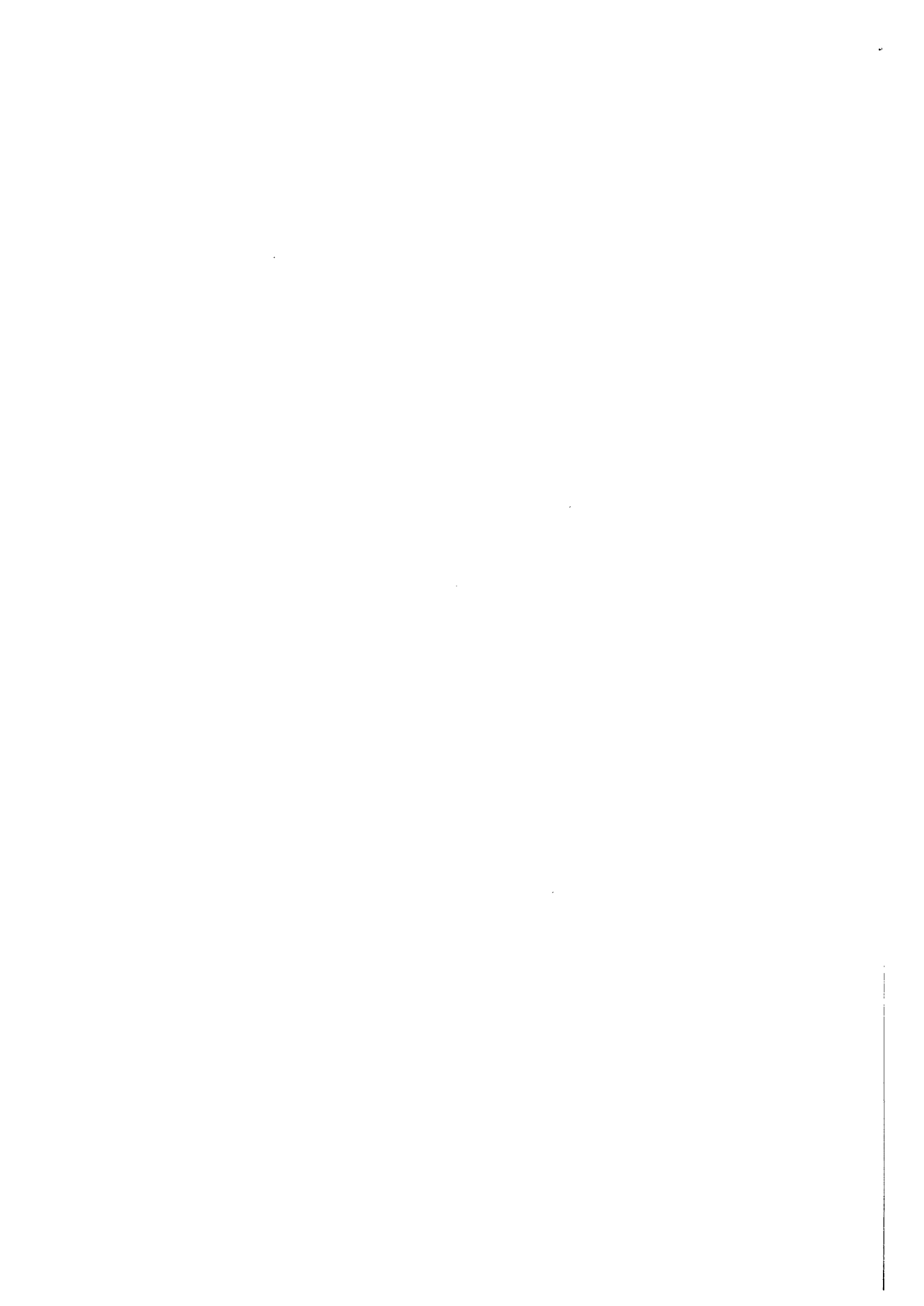


Fig.7 Deviation of the sea-surface temperature in June, July, 1987 from the monthly mean for 30 years 1956-1985. (From The Ten-Day Marine Report, No.1466, 1469)



TRANSLATION

OUTLINE OF OCEANOGRAPHIC CONDITIONS OF THE NORTHWEST PACIFIC  
DURING THE SUMMER OF 1987

Kazuhiko Hiramatsu  
Fisheries Agency of Japan  
1987 September

THIS PAPER MAY BE CITED IN THE FOLLOWING MANNER:  
Hiramatsu, Kazuhiko. 1987. Outline of  
oceanographic conditions of the northwest Pacific  
during the summer of 1987. (Document submitted to  
the Annual Meeting of the International North Pacific  
Fisheries Commission, Vancouver, Canada, 1987 October.)  
4 p. Fisheries Agency of Japan, Tokyo, Japan 100.

## Introduction

Oceanographic conditions in the northwestern Pacific during the summer of 1987 were examined using data on water temperature as in previous years. Data used were obtained mainly from ten salmon research vessels and three salmon motherships. Since the period of survey in 1987 was short, similar to previous years, synoptic information on the northwestern Pacific was obtained only for June and July. Observations were made at 259 stations in June and 183 stations in July (Figs. 1 and 2). For surface water temperatures "The Ten-day Marine Report" of the Meteorological Agency of Japan was used. Much previous work has pointed out that distribution and migration of salmon in the northwestern Pacific are influenced by Western Subarctic Water, the Alaskan Stream, and surface water temperature. Therefore, we assessed the distribution and features of these water masses.

### 1. Western Subarctic Water

Western Subarctic Water is a cold water mass produced by surface cooling in winter that is widely distributed in the northwestern Pacific, centering off the eastern areas of the Kamchatka Peninsula and the Kuril Islands. A feature of this area is the southward and eastward extensions of this cold water from winter to summer. In particular, the southern extension of cold water observed almost every year between 165° and 170°E is called "the Komandorskie Cold Tongue". In this report, identifying the cold water mass with temperature 3°C or less at 100 m depth as Western Subarctic Water, we examined the strength of Western Subarctic Water based on its southward and eastward extensions as in previous years.

June (Fig. 3): The southern edge of cold water with temperature of 3°C or less appeared to have reached 42°30'N between 165° and 170°E and that of cold water with temperature of 2°C or less also reached about 43°N suggesting that the southward extension of the Western Subarctic Water was almost as strong as in the previous year (Fig. 5).

In addition, the eastern edge of the cold water with temperature of 3°C or less reached about 180° between 46° and 50°N suggesting that the eastward extension was also strong.

July (Fig. 4): The Komandorskie Cold Tongue continued to be traced in July and it appeared that the southward extension was as strong as in June.

The eastward extension in July could not be determined because of the inadequate number of stations, but is presumed to have reached around 180°.

## 2. Alaskan Stream

The Alaskan Stream is recognized as a relatively high temperature current which flows toward the west along the south side of the Aleutian Islands. We examined the location of water with relatively high temperature of 4°C or more south of the Aleutian Islands at 100 m depth in order to determine the strength of the stream.

June (Fig. 3): The strength of the Alaskan Stream could not be accurately determined for this month because of the inadequate number of stations in waters south of the Aleutian Islands. However, the Alaskan Stream was not considered to be very strong since water mass with temperature of 4°C or less appeared as far as around 174°E.

July (Fig. 4): The western edge of warm water with temperature of 4°C or more was observed at least as far as around 174°E and thus the strength of the Alaskan Stream was considered the same as in a normal year.

Figure 6 shows the inter-annual fluctuations in the extension of the Alaskan Stream for June. For 1987, however, since no conclusive data were available for June, the westward extension for July is plotted for reference.

### 3. Surface water temperature

Figure 7 shows deviations of the sea-surface temperature for June and July from the monthly mean for the past 30 years (from 1956 to 1985). In June, deviations suggest that surface water temperature in the northwest Pacific was almost the same as in a normal year. However, in July, the surface water temperature in waters between 40° and 45°N was lower than in normal years by 1 to 2°C.

The oceanographic conditions in the northwest Pacific during the summer of 1987 can be summarized as follows--

1. The southward and eastward extensions of Western Subarctic Water were stronger than in normal years in both June and July.
2. The westward extension of the Alaskan Stream was the same as in normal years.
3. Surface water temperatures were the same as in normal years in June and lower than in normal years for waters between 40° and 45°N in July.

-----

FIGS. 1 TO 7 ARE IN ENGLISH IN THE JAPANESE DOCUMENT