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1986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 1986

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平松一彦．1986．1986年夏季の北西太平洋における海況概要．9頁．（第33回INPFC定例年次会議提出文書．1986年10月．米国，アンカレッジ市）．水産庁，遠洋水産研究所，日本，〒424清水市折戸5-7-1．

1986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 1986

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まえがき

1986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9隻、さけ・ます母船4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217点、7月192点であった。(Fig. 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う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り出し始め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°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°C 以下の冷水が 168°E において 41°N 付近まで南下していたものと思われる。これはWestern Subarctic Waterの南方張り出しが例年になく強かったことを示している。(Fig. 5)

一方東方への張り出しは、 3°C 以下の冷水は 49°N において 176°E にまで及んでいるが、 172°E 付近には部分的に 3°C 以上の暖水域が存在しており、東方張り出しは全体としてやや弱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 4°C 等温線にその根跡を残しているものの、 3°C 等温線の形状からはみられず、6月に比べ寒冷水の分布域は北上後退し、ほぼ平年並となっている。

東方への張り出しは、6月とほぼ同様であるが、やや南東方向に張り出している。

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)：4℃以上の水は173°E付近にまで見られる。ここ数年はAlaskan Streamの勢力が強く西方への貫入は170°E付近にまで及んでいたが、それに比べると本年は弱く、ほぼ平年並の勢力であったものと思われる。(Fig. 6)

7月(Fig. 4)：4℃以上の水は176°Eまでしか見られず、Alaskan Streamの勢力は例年に比べやや弱く、冷水系の勢力が強かったものと思われる。

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45°N～50°N以北の高緯度域で平年よりやや高め、それ以南の低緯度域ではやや低めとなっている。

7月にはいってもこの傾向は同様であった。

以上に述べた1986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の南方への張り出しは、6月には例年になく強かったが、7月にはほぼ平年並となった。
2. Alaskan Streamの西方張り出しは近年では弱い方であった。
3. 表面水温は45°N～50°N以北で平年より高温、以南で低温であった。

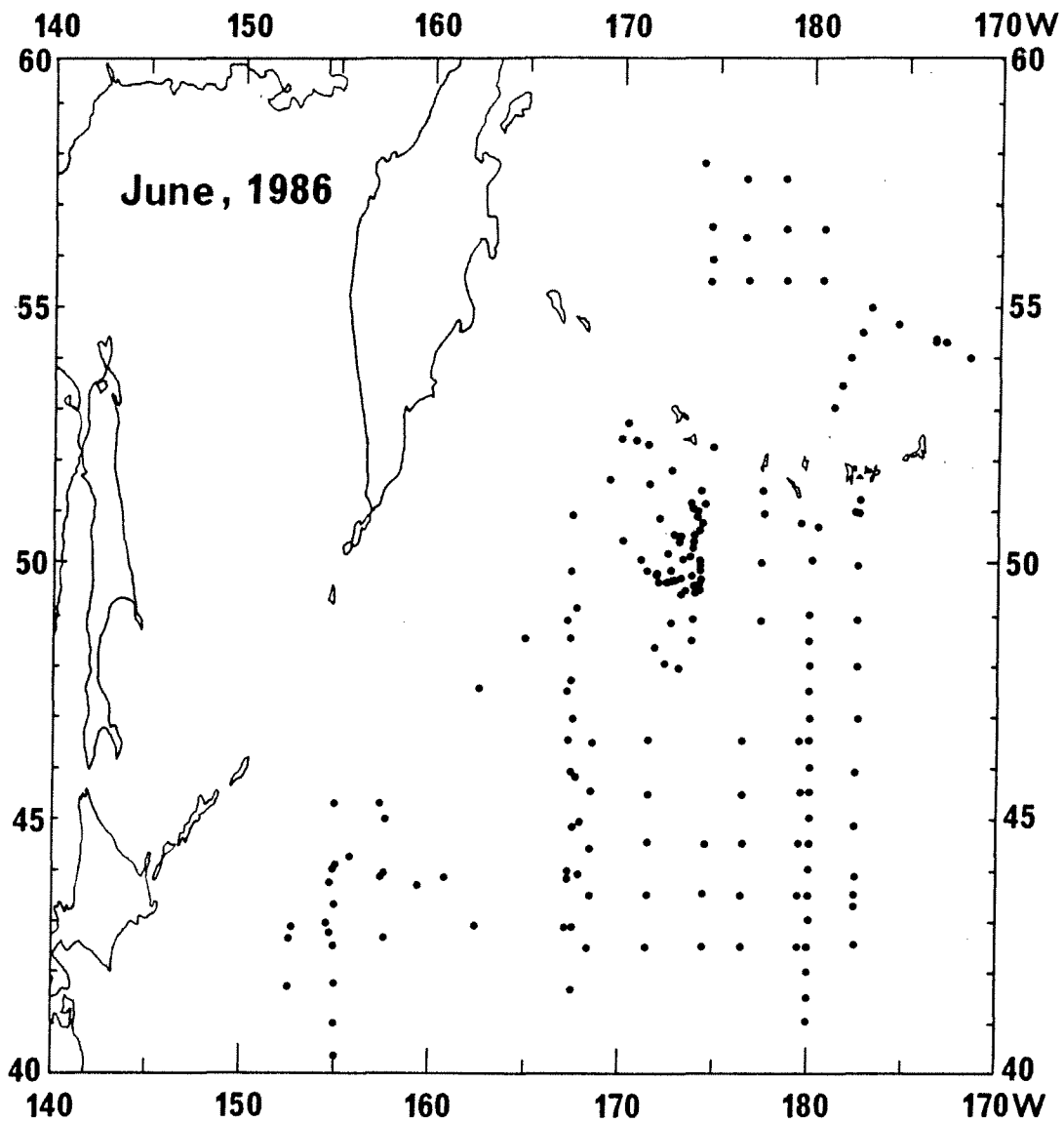


Fig.1 Locations of oceanographic stations (June,1986)

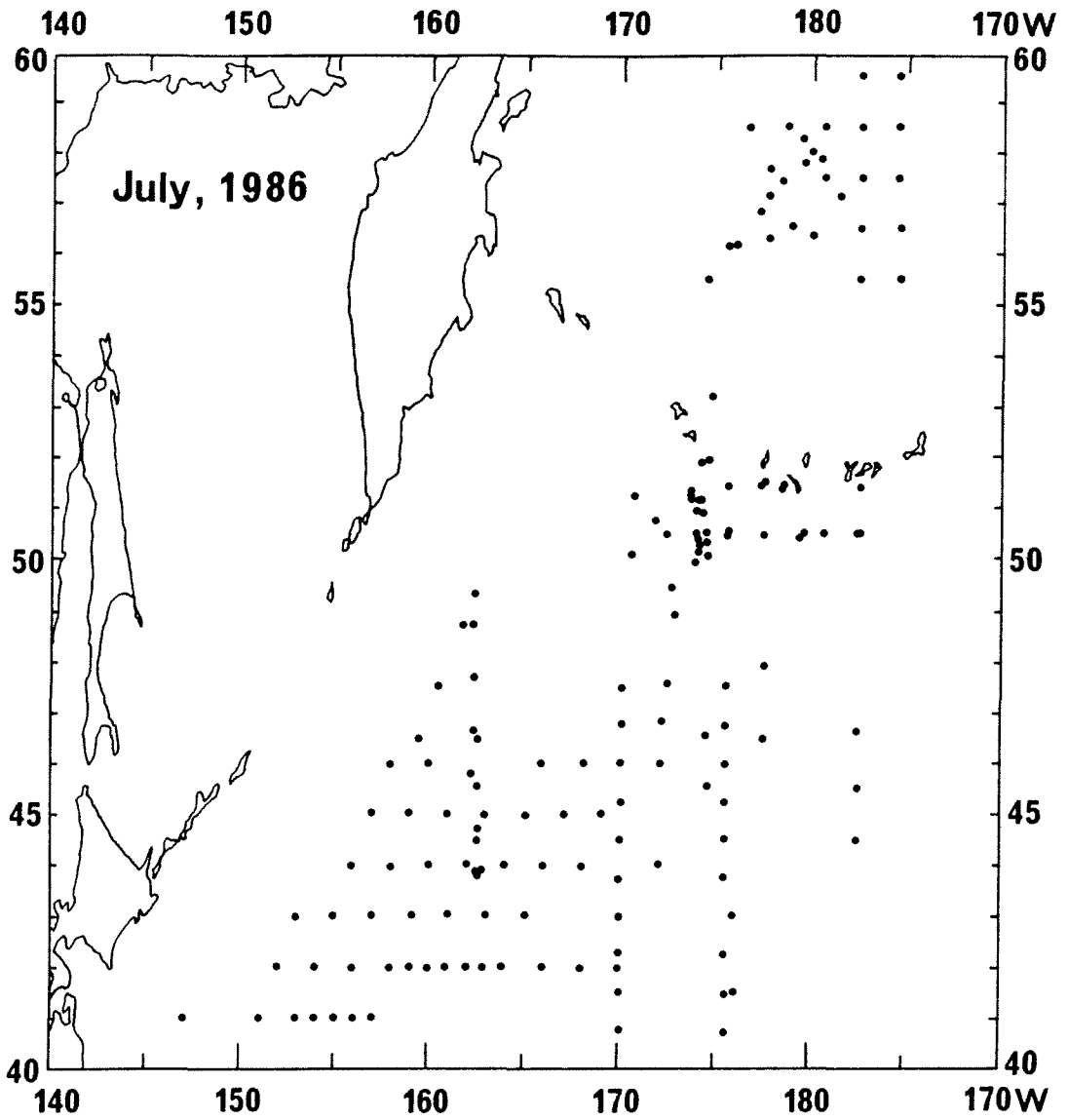


Fig.2 Locations of oceanographic stations (July,1986)

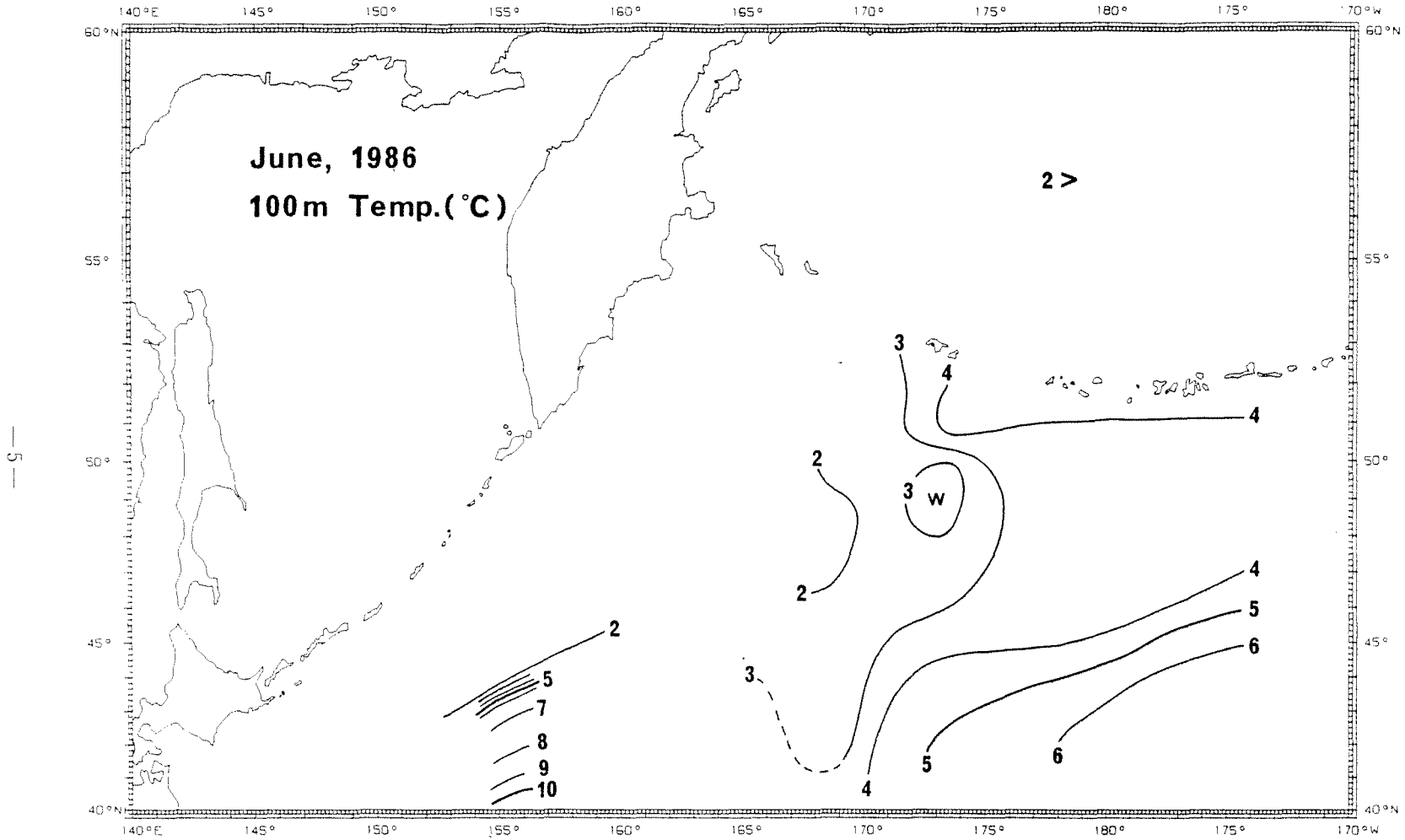


Fig.3 Temperature distribution at 100m layer in June,1986

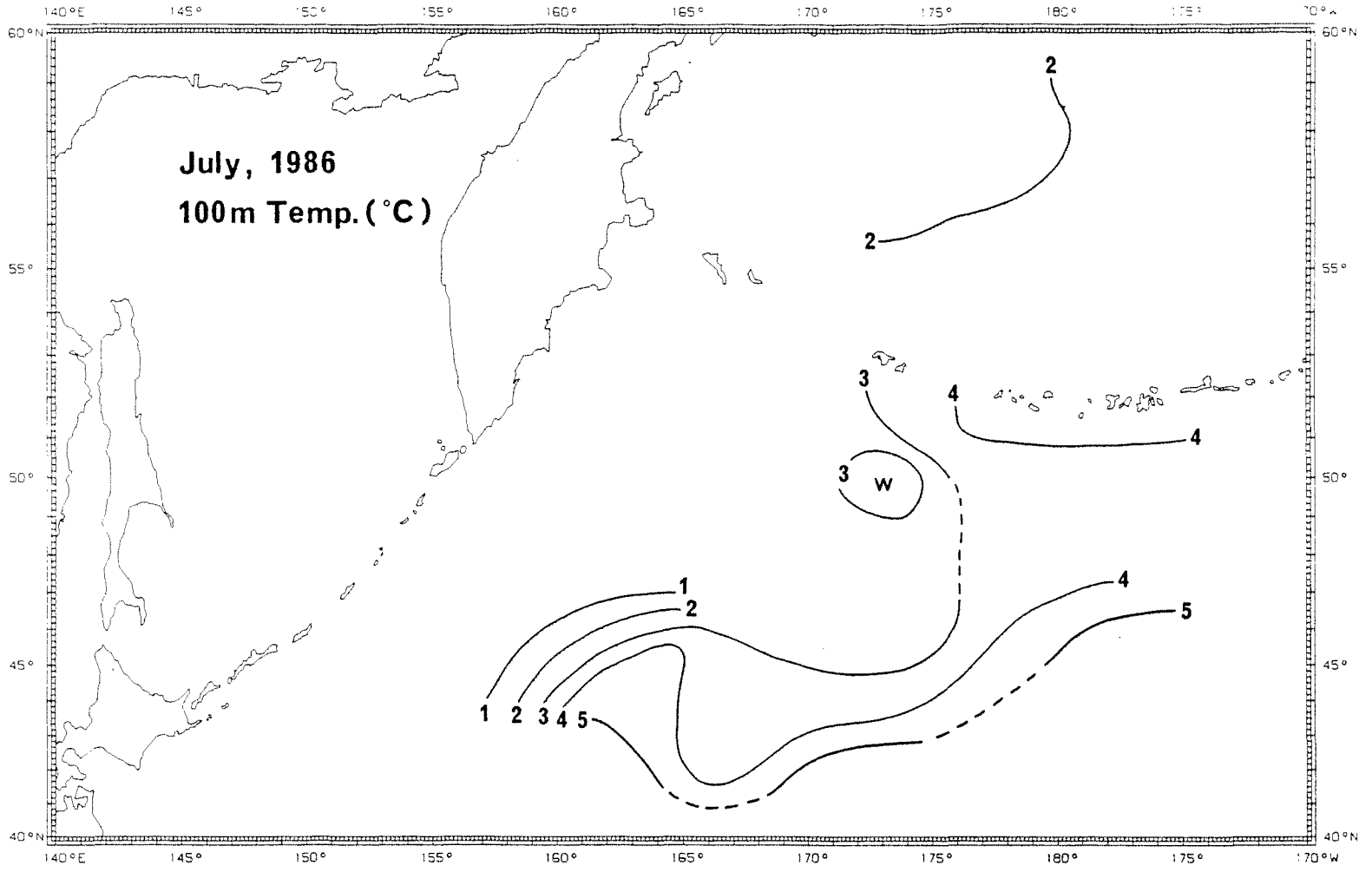


Fig.4 Temperature distribution at 100m layer in July,1986

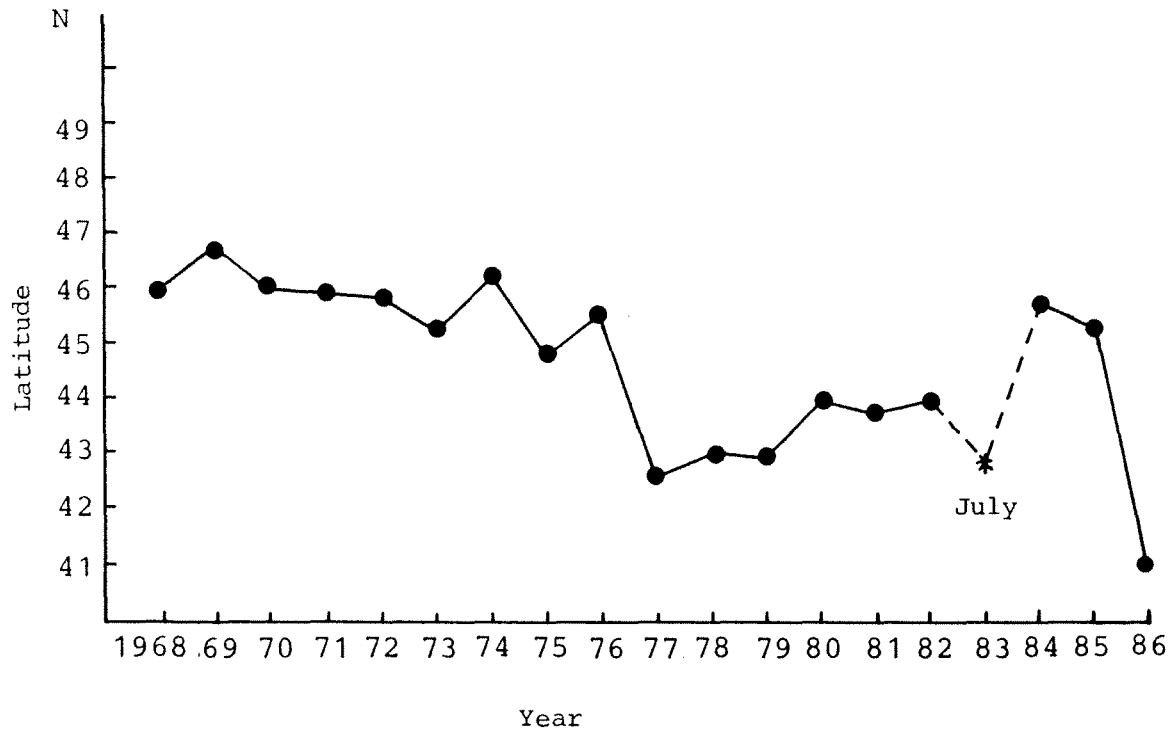


Fig. 5 Annual fluctuation of southward extension of Komandrskie tongueshaped cold water in June indicated 3°C isothermal at 100m depth.

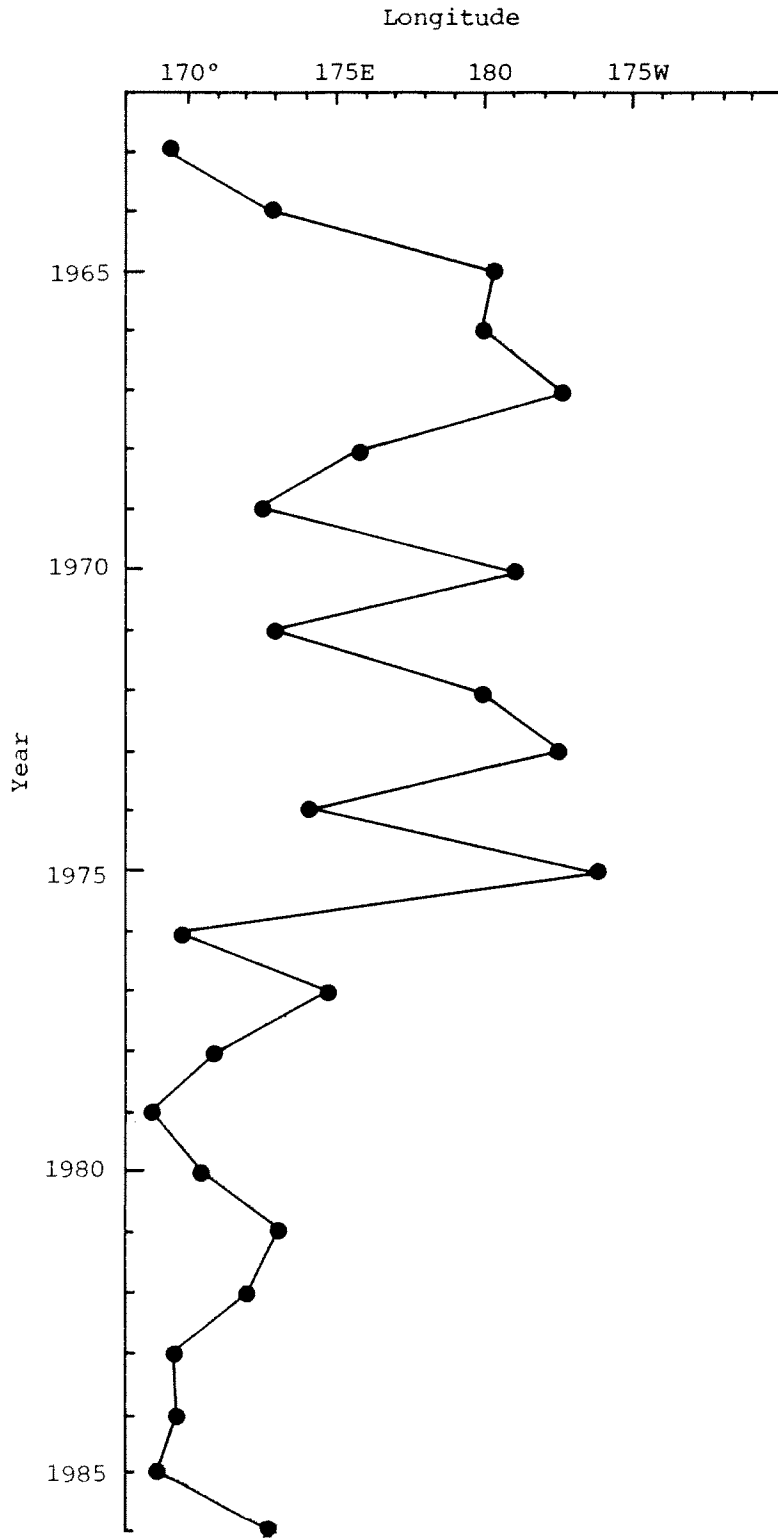


Fig. 6 Annual fluctuation of the extension of Alaskan stream in June indicated by 4°C isotherm at 100m depth.

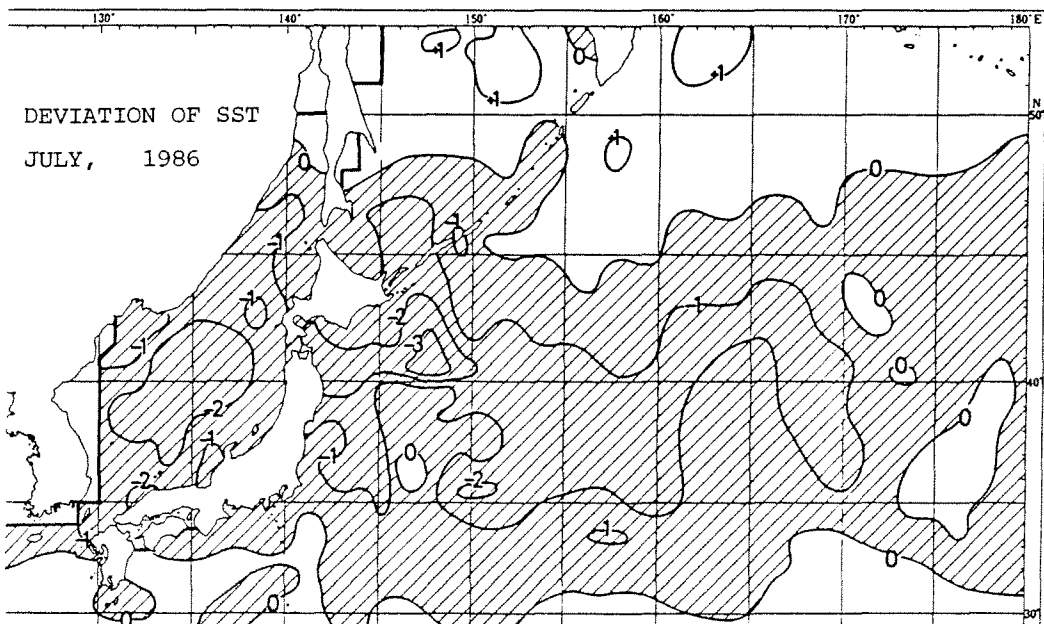
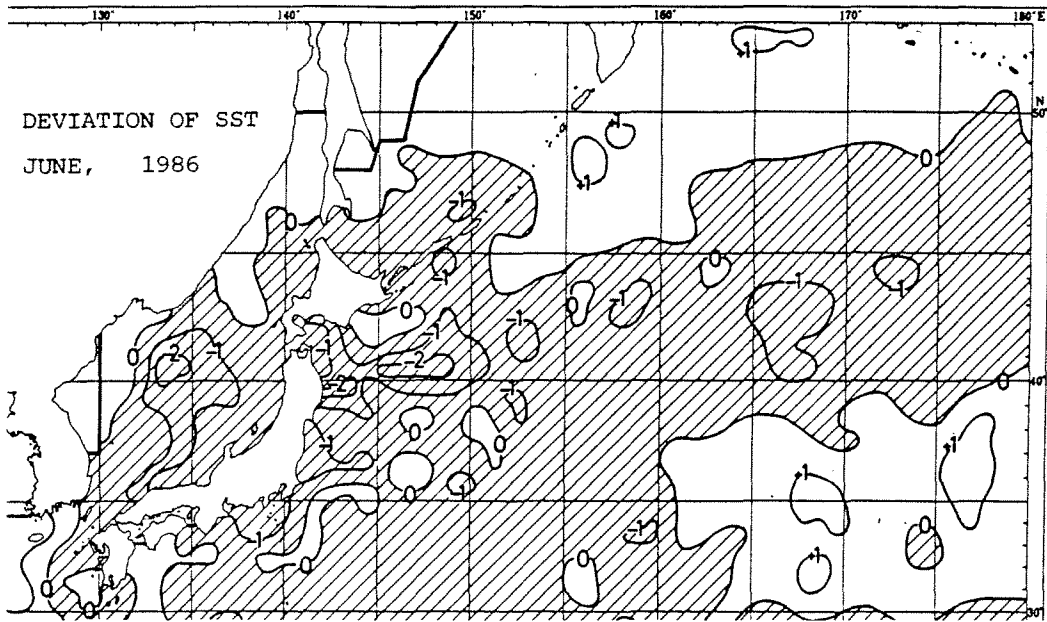


Fig.7 Deviation of the sea-surface temperature in June, July, 1986 from the monthly mean for 30 years 1956 - '85. (From The Ten-Day Marine Report, No.1430, 1433)

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TRANSLATION

OUTLINE OF OCEANOGRAPHIC CONDITIONS OF THE NORTHWEST PACIFIC
DURING THE SUMMER OF 1986

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Fisheries Agency of Japan
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Introduction

Oceanographic conditions in the northwestern Pacific during the summer of 1986 were examined using data on water temperature as in previous years. Data used were obtained mainly from nine salmon research vessels and four salmon motherships. Since the period of survey in this year was short, similar to the previous year, synoptic information on the northwestern Pacific was obtained only for June and July. Observations were made at 217 stations in June and 192 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°E 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 the cold water temperature of 3°C or less appeared to have reached around 41°N on 168°E suggesting that the southward extension of the Western Subarctic Water was unusually strong (Fig. 5).

On the other hand, the eastern edge of the cold water with temperatures of 3°C or less reached 176°E on 49°N but an isolated water mass with temperature of 3°C or more was observed around 172°E. These features suggest that the eastern extension of the Western Subarctic Water was somewhat weak on the whole.

July (Fig. 4): Although the Komandorskie Cold Tongue could be traced by the 4°C isotherm, it was not identified by the 3°C isotherm distribution. The distribution of cold water moved northward and receded compared to June, similar to that in a normal year.

The eastward extension was almost the same as in June but the direction of the extension was somewhat southeastward.

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 western edge of the water with temperature of 4°C or more was observed as far as about 173°E. In several recent years, the Alaskan Stream was strong and the intrusion of warm water extended to as far as around 170°E. However, compared to those years, the strength of the Alaskan Stream was weak in 1986 and assumed to be the same as in a normal year (Fig. 6).

July (Fig. 4): The western edge of warm water with temperature of 4°C or more was observed only as far as 176°E which suggests that the Alaskan Stream was weaker than in a normal year and that the strength of the cold water was maintained.

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 somewhat higher for the high latitude area (north of 45° to 50°N) and somewhat lower for the low latitude areas south of this range than in normal years. This tendency remained almost the same in July.

The oceanographic conditions in the northwest Pacific during the summer of 1986 can be summarized as follows--

1. The southward extension of the Western Subarctic Water was unusually strong in June but became almost the same as in a normal year in July.
2. The westward extension of the Alaskan Stream was relatively weak compared to recent years.
3. Surface water temperatures were higher in the area north of 45° to 50°N and lower in the area south of this range than in normal years.

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