

# 北海道オホーツク海沿岸域の流氷来遊期の海洋環境と基礎生産の特性

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## Characteristics of oceanographic environments and primary production during sea-ice season in the coastal region along the Okhotsk Sea of Hokkaido

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In spite of the importance as a fisheries ground on scallop and crabs in the coastal region along the Okhotsk Sea of Hokkaido, there were severely few findings on the oceanographic environments, especially structure and productivity of plankton community, during winter due to visit of drifting sea-ice. Since 2009, we conducted the oceanographic surveys using the icebreaker during sea-ice season around Mombetsu, Hokkaido, and the year-round monitoring survey on oceanography was carried out at Mombetsu Port.

In the surveys during sea-ice on shore, water temperature at the inshore stations was lower than 0 °C through the entire of water column, and was constant vertically. In the surveys during retreating sea-ice, the temperature rose slightly, relatively high temperature (>2 °C) water was found occasionally in the bottom layer of the offshore stations. Salinity was less related to presence of drifting sea-ice, low salinity (32.5<) water dominated in the survey region until early-March. Salinity increased in mid-March, showing the distribution that (low-temp) low-salinity water in inshore region and (high-temp) high-salinity water in bottom of offshore region were observed. Chl.a concentration observed in Mombetsu Port increased just after sea-ice breakup in many cases, suggesting that sea-ice retreat may be a necessity to initiate phytoplankton bloom in the coastal region.

北海道オホーツク海沿岸域はホタテガイやカニ類の重要な漁場であるが、流氷の来遊のため冬季の海洋環境、とりわけプランクトン群集の構造や生産力などの知見はきわめて限られている。北海道紋別沿岸域での流氷の接岸期および海明け後の後退期に砕氷船ガリンコ号 II を用いた海洋観測を 2009 年より行うとともに、紋別港の観測ステーション（オホーツクタワー）において、流氷来遊期を含めた周年にわたる海洋環境のモニタリング調査を行った。

流氷接岸中に行った観測（2 月上旬～3 月中旬）では距岸 3 海里までの測点では水柱を通じて水温は 0°C 以下であり、鉛直分布もほぼ一様であった。流氷後退期の観測では水温は全層にわたってやや上昇し、4 海里沖の測点の底層では 2°C 以上の比較的高水温の水塊が存在した年もあった。一方、塩分は流氷の有無との関係は低く、3 月上旬までの観測では 32.5 以下の低塩分水が卓越していた。3 月中旬にはそれ以前よりも塩分は増加したが、海岸近くは（低水温）低塩分水、沖合の底層には（高水温）高塩分水が分布し、この時期の水温と塩分は 2 つの水塊の混合によって決まっている特徴を示した（Figure 1）。オホーツクタワーでの chl.a 濃度は多くの年で海明け後に増加し始め（Figure 2）、流氷の後退が沿岸域の植物プランクトンブルームの開始の重要なきっかけであることを示した。

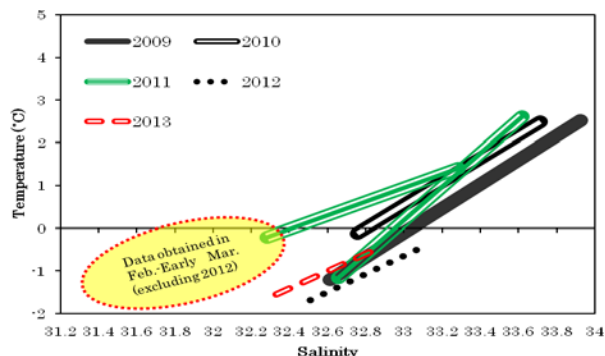


Figure 1. Simplified T-S diagrams obtained in mid-March (2009-13).

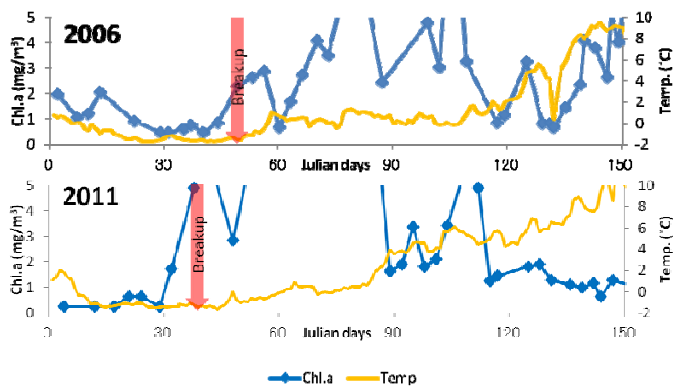


Figure 2. temporal changes of chl.a concentration and temperature at the surface layer in 2006 and 2011. Vertical arrow in each panel shows the date of sea-ice breakup.