

# Using the satellite altimetry data to reveal perspective areas of the neon flying squid fishery

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## Abstract

Relation between distribution of fishery for the neon flying squid and water dynamics in the south Kuril area was analyzed basing on driftnet squid catches during the summer-autumn periods in 1998-2001, and on the ocean level as revealed from satellite altimetry.

Monofilament driftnets with mesh size from 90-120 mm were used to catch squid. Net width was 8-9 m. Fishing operations were made at nighttime. 100 nets (tans) per one fishing array were deployed. Each vessel deployed 1-4 net arrays, i.e. 100-400 nets (tans). A total of 522 nets (tans) were set during the whole period of research activity.

We used kg per 100 m of net as a CPUE (catch per unit effort) to get comparable results, because different vessels used nets with variable length.

We used ocean level anomaly maps produced from Colorado Center for Astrodynamics Research (USA) altimetry data (made from satellites TOPEX and ERS-2) as the characters of water dynamics in the fishery area.

Ocean level could be used as an integral character of intensity of thermodynamic and dynamic oceanic processes that reflect abiotic conditions for commercial species.

Ocean level should be considered much better predictor for abiotic conditions when compared to sea temperature due to the following reasons:

- it reflects thermodynamic characters of the whole oceanic layer, and not only that of the surface;
- it provides description of currents, eddies, upwelling and down welling areas with better accuracy;
- it is directly connected with variability in atmospheric processes.

Catch data from fishery vessels for a particular day were laid upon anomaly maps, and variability in anomaly level was estimated at 5-cm intervals.

As a result, we have found that all squid catches were observed within the anomaly range from -25 to 15 cm, and most of positive sets (over 83%) were made within the range from -10 to 5 cm.

Squid schooled in commercial concentrations within dynamically stable regions between cyclonic and anticyclonic areas with a slight shift towards cyclonic zones.