



Water temperature changes in the nearshore zone of Aniva Bay from mooring observations.

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INTRODUCTION

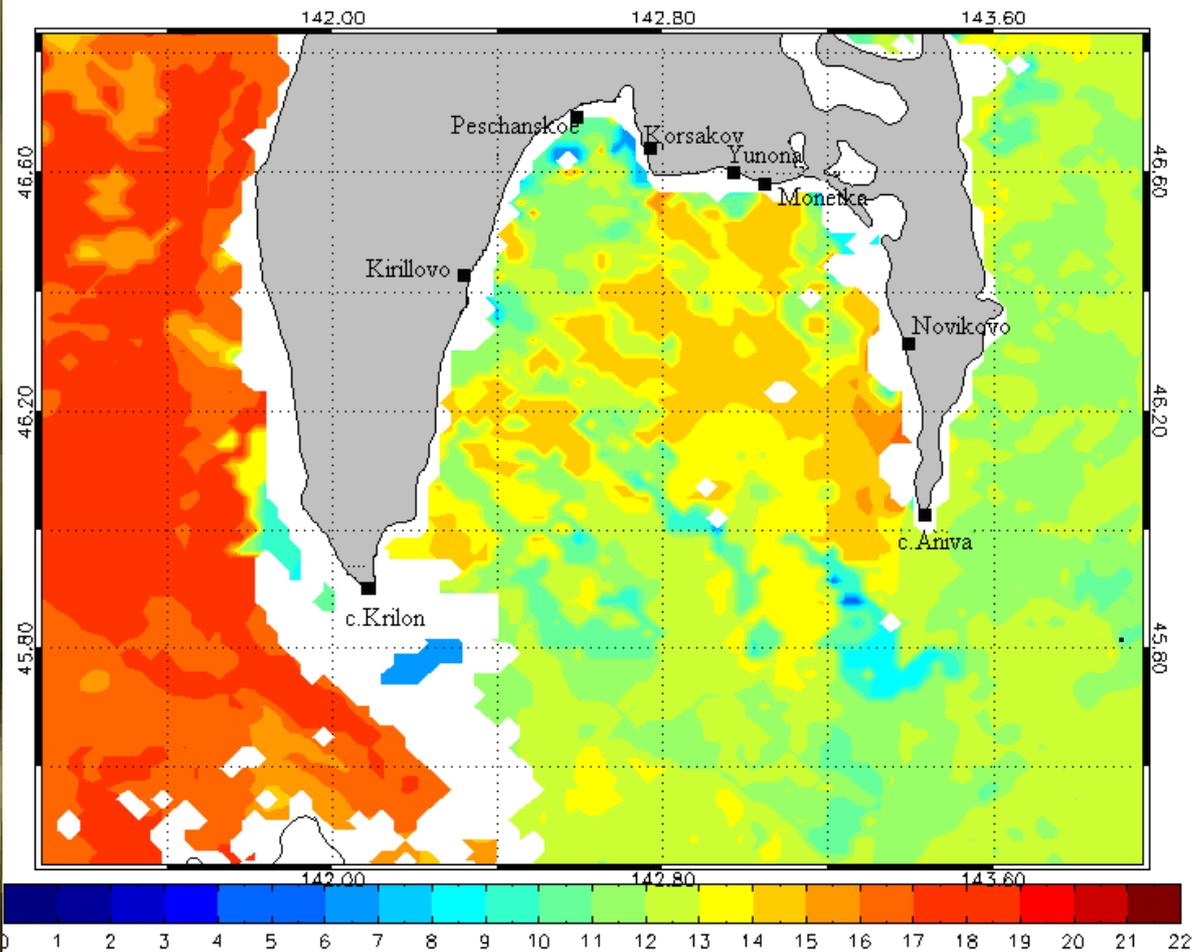


- Aniva Bay is the center of attention of many scientists because of condensing gas plant and shipment terminal building in the Prigorodnoe village .On the other hand, Aniva Bay is the fishing area, in particular with high catches of pink salmon.
- For these reasons, The Sakhalin Research Institute of Fisheries and Oceanography together with the Sakhalin Hydro-meteorological Agency carried out the special field experiment to investigate water temperature and current velocity variations in this Bay in July-October 2003.

Fig.1 Aniva Bay

Coastal upwelling is a dynamic system that usually forms under the wind with a particular range of directions. In some cases, this phenomenon occurs as a result of internal processes happened in the ocean (captured waves, an intensification of the coastal currents etc.). This system is characterized by intensive upward water movements from subsurface layers to the surface in the narrow zone between the shores and alongshore jets.





Five moorings with the SonTek Argonaut 3D current meters were installed in the nearshore zone in the northern part of the Bay. Water temperature and wind velocity data measured at the Novikovo, Korsakov and Cape Krilon meteorological station were analyzed (Fig.3).

Fig.2 Water temperature distribution in Aniva Bay under the satellite data (for II decade of July, 2003).

Table 1. Coordinates of stations and data on used devices and duration of measurements.

№	Names of ABS	Date staging	Date rising	Latitude	Longitude	Depth of place	Horizon	Device
10	Monetka	07.06.2003	23.11.2003	46,25	143,18	18	8	SonTek Ar go na ut
12	Peschanskoe -1	15.06.2003	06.08.2003	46,42	142,35	12	11	Son Tek X R
17	Peschanskoe -2	06.08.2003	12.12.2003	46,42	142,35	12	11	Son Tek X R
13	Kirillovo-1	18.06.2003	26.10.2003	46,29	142,24	14	12	Son Tek Tri to n
23	Kirillovo -2	26.10.2003	24.11.2003	46,29	142,25	15	12	Son Tek Tri to n
14	Ynona	18.06.2003	23.11.2003	46,35	142,59	21	11	SonTek Ar go na ut

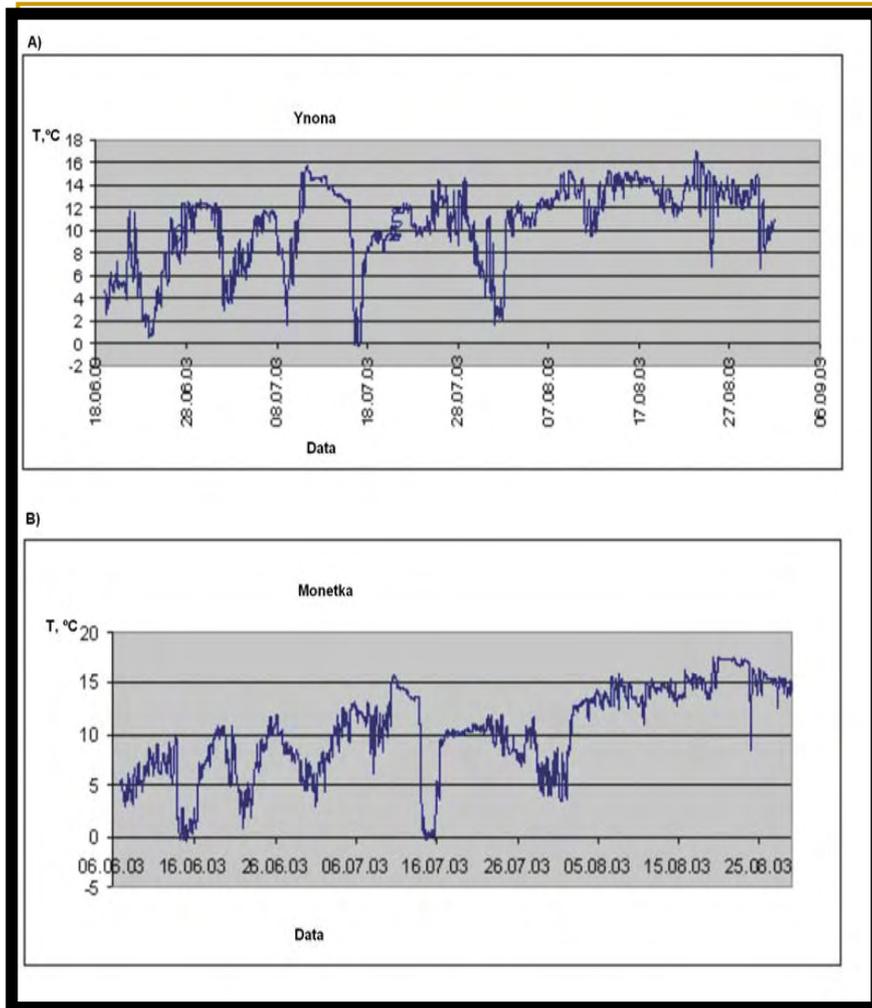
Data st. Monetka	Water temperature, °C. st. Monetka	Water temperature, °C. st. Unona	Data st. Unona
14.06.2003.	0.1	-0.1	14.06.2003
15.06.2003	-0.6	0.1	15.06.2003
16.06.2003	0.4	0.3	16.06.2003
14.07.2003	0.2	0.5	16.07.2003
15.07.2003	0.1	0.3	17.07.2003
16.07.2003	0.5	0.7	18.07.2003



Tabl.2 Anomalies of sea water temperature

Events of the sharp temperature decrease are revealed in the coastal areas of the Bay which were traced also from satellite data. This phenomenon was not earlier observed.





- In June the 2 °C decrease of water temperature was observed at every station. However, water temperature at the Monetka and Ynona st. fell below zero, from 6°C to -0.6 °C for the Monetka station. Low temperature persisted about 3 days, with mostly northeastern winds during this period. After that water temperature increased above zero.
- Similar events occurred in July. However, the decreased water temperature was observed only during one day in July.

Fig.3 Schedules of distribution of a water temperature on a surface for the summer period. A- Ynona station, B – Monetka station.

conclusion

- Several cases of a sharp sea water temperature fall were detected in the coastal zone of Aniva Bay as the result of material analysis in the water temperature instrumental measurements, speed and wind direction, received according to autonomous buoy-based stations.
- It is mostly appeared in the north-eastern part of the gulf ("Monetka" and "Ynona" stations).
- In some cases, water temperature decreased from 14°C to negative values over the circadian period.
- In the north-western part of the exploring pool the given phenomenon practically does not appear that indicates the wind nature of the following phenomenon.
- Coastal upwelling forms under the influence of the north winds in the second decade of July, 2003, and appears only in the third decade that can be explained as the "delay" effect.



THANK YOU!!!

