

---

# Subsistence strategy in the early Holocene High Arctic (Zhokhov site, Arctic Siberia)

Vladimir Pitulko\*<sup>1</sup> and Aleksei Kasparov<sup>2</sup>

<sup>1</sup>Institute for the History of Material Culture, RAS – 18 Dvortsovaya nab. St Petersburg 191186, Russie

<sup>2</sup>Institute for the History of Material Culture, RAS – 18 Dvortsovaya nab. St Petersburg 19186, Russie

## Résumé

The Zhokhov site is one of the northernmost archaeological sites in the world (76° N), indicating that the High Arctic regions had been human-populated as early as 9,000 years ago. The site yielded an enormous number of osteological remains (NISP = 54,850 bone fragments total) that allow reconstructing the subsistence strategy practiced by Zhokhov inhabitants.

This was a peculiar terrestrial adaptation model based on reindeer and polar bear hunting. Total yield for the reindeer counts to NISP=14,614 bone fragments (MNI=245) while the polar bear is presented by NISP=5915 bone fragments (MNI=130). Seals produced NISP=6.

Reindeer constitutes two thirds of the harvested animals. Its tooth eruption sequences previously showed that the animals from the Zhokhov collection were killed mainly during spring and summer. Study of season of death performed on tooth cementum record demonstrates that in the random reindeer sample of 29 specimens, 12 animals died in spring, 11 in fall, three in winter, and another three in summer. Out of 48 samples analyzed, 24 animals died in fall (from September to early December), nine – in spring (April-May), four – during the second half of the summer, and 13 – in winter (end of December – end of January). As with tooth cement rings, it appears that reindeer were also hunted in winter which means that sparse semi-sedentary reindeer population existed nearby.

Polar bears killed by Zhokhov hunters are adult animals and mostly medium size individuals. Typically this means females. To confirm sex and age structure of the polar bear group hunted on the Zhokhov Island we have analyzed their mandibles (N=40). This kind of selection can be explained only by hunting tactics when hunters were killing female bears at dens during the winter time. By dental cementum analysis we have identified season of death which falls within the winter time, from December to March.

Mortality data for reindeer and polar bears depict the yearly subsistence cycle. The Zhokhov site is found to be a base camp occupied year-round with modest summer activities, while wintertime is characterized by intense polar bear hunting. Most reindeer were hunted in the fall. Subsistence strategy of the Zhokhov hunters was largely facilitated by the fact that at the time of occupation, Zhokhov island was still part of the coastal Siberian plain margin. The local adaptation was also found to have included systematic use of sled dogs.

This work is supported by Russian Science Foundation project No. 16-18-10265-RNF.

---

\*Intervenant

**Mots-Clés:** Early Holocene, Stone Age, Arctic, archaeozoology, subsistence cycle, seasonality