**Supplementary data**

Table 1. Ostracod species occurrence in core Ak-2575

Figure I. SEM images of ostracod species

1 - *Graviacypris elongata* (Schweyer, 1949), right valve (RV) of male, АK 2575, 154-156 cm. 2 - *G. elongata*, left valve (LV) of female, АK 2575, 150-152 cm. 3 - *Bythocythere* sp., RV of male, АK 2575, 28-30 cm. 4 - *Bythocythere* sp., LV of female, АK 2575, 24-26 cm. 5 - *Fabaeformiscandona* sp. sensu Schornikov, 2011, RV of A-1, 158-158 cm. 6 - *Fabaeformiscandona* sp., RV of A-1, 174-176 cm. 7 - *Leptocythere multipunctata* (Seguenza, 1884), RV of female, АK 2575, 126-128 cm. 8 - *L. multipunctata*, RV of female, АK 2575, 110-112 cm. 9 - *L. multipunctata*, LV of male, АK 2575, 106-108 cm. 10 - *Amnicythere stepanaitysae* (Schneider in Mandelstam et al.,1962), RV of female, АK 2575, 156-158 cm. 11 - *A. stepanaitysae*, LV of female, АK 2575, 180-182 cm. 12 - *A. stepanaitysae*, RV of female, АK 2575, 156-158 cm. 13 - *A. stepanaitysae*, LV of female, АK 2575, 156-158 cm. 14 - *Amnicythere resupina* (Stepanaitys in Mandelstam et al., 1962), RV of male, АK 2575, 156-158 cm. 15 - *A. stepanaitysae*, LV of female, АK 2575, 166-168 cm. 16 - *A. resupina*, RV of female, АK 2575, 156-158 cm. 17 - *A. resupina*, LV of female, АK 2575, 160-162 cm. 18 - *Amnicythere striatocostata* (Schweyer, 1949), RV of female, АK 2575, 176-178 cm. 19 - *A. striatocostata*, LV of male, АK 2575, 180-182 cm. 20 - *Amnicythere hilda* (Stepanaitys, 1960), LV of female, АK 2575, 180-182 cm. 21 - *A. hilda*, LV of female, АK 2575, 180-182 cm. Bar: 1-19 - 100 µm, 20-21 - 60 µm

Figure 2. SEM images of ostracod species

1 - *Euxinocythere relicta* (Schornikov, 1964), right valve (RV) of female, АK 2575, 156-158 cm. 2 - *E. relicta*, left valve (LV) of female, АK 2575, 156-158 cm. 3 - *E. relicta*, RV of female, АK 2575, 182-184 cm. 4 - *E. relicta*, LV of female, АK 2575, 166-168 cm. 5 - *E. relicta*, RV of female, АK 2575, 182-184 cm. 6 - *E. relicta*, LV of male, АK 2575, 166-168 cm. 7 - *Amnicythere* sp. 1, RV of male, АK 2575, 158-160 cm. 8 - *Amnicythere* sp. 1, LV of female, АK 2575, 158-160 cm. 9 - *Amnicythere* sp. 2, RV of female, AK 521, 165-170 cm. 10 - *Amnicythere* sp. 2, LV of female, AK 521, 165-170 cm. 11 - *Amnicythere* sp. 2, RV of A-1, AK 521, 165-170 cm. 12 - *Amnicythere* sp. 2, LV of A-1, AK 521, 165-170 cm. 13 - *Amnicythere*? sp., RV of female, AK 521, 165-170 cm. 14 - *Amnicythere*? sp., RV of male, AK 521, 165-170 cm. 15 - *Amnicythere martha* (Livental in Agalarova et al., 1940), RV of female, АK 2575, 160-162 cm. 16 - *A. martha*, LV of male, АK 2575, 160-162 cm. 17 - *Amnicythere volgensis* (Negadaev, 1957), RV of female, AK 521, 170-175 cm. 18 - *A. volgensis*, LV of male, АK 521, 190-195 cm. 19 - *Euxinocythere*? sp., RV of 190-195 cm. 20 - *Euxinocythere baquana* (Livental, 1938), RV of female, АK 2575, 154-156 cm. 21 - *Euxinocythere virgata* (Schneider, 1962), RV of male, АK 2575, 156-158 cm. 22 - *E. virgata*, LV of female, АK 2575, 156-158 cm. 23 - *Euxinocythere bosqueti* (Livental, 1929), LV of female, AK 521, 170-175 cm. Bar: 1-23 - 100 µm.

Figure 3. SEM images of ostracod species

1 - *Cytheroma marinovi* Schornikov, 1969, right valve (RV) of female, АK 2575, 30-32 cm. 2 - *C. marinovi*, left valve (LV) of male, АK 2575, 32-34 cm. 3 - *Pontocythere tchernjawskii* Dubowsky, 1939, RV of A-1, АK 2575, 14-16 cm. 4 - *Hiltermannicythere rubra* (Műller, 1894), RV of female, АK 2575, 40-42 cm. 5 - *Tyrrhenocythere amnicola donetziensis* (Dubowsky, 1926), RV of A-1, АK 2575 182-184 cm. 6 - *T. amnicola donetziensis*, LV of A-1, АK 2575, 172-174 cm. 7 - *Carinocythereis carinata* (Roemer, 1838), LV of А-2, АK 2575, 32-34 cm. 8 - *Sagmatocythere rennata* (Schornikov, 1965), RV of male, АK 2575, 90-92 cm. 9 - *S. rennata*, LV of female, АK 2575, 90-92 cm. 10 - *Loxocaspia lepida* (Stepanaitys, 1962), RV of female, АK 2575, 150-152 cm. 11 - *L. lepida*, LV of male, АK 2575, 150-152 cm. 12 - *L. sublepida* (Stancheva, 1989), RV of female, АK 2575, 150-152 cm. 13 - *L. sublepida*, LV of male, АK 2575, 150-152 cm. 14 - *L*. cf. *immodulata* (Stepanaitys, 1958), RV of female, AK 521, 172-175 cm. 15 - *L*. cf. *immodulata*, LV of male, Ak 521, 180-185 cm. 16 - *Sarmatina*? cf*. azeri* (Agalarova, 1961), RV of female, АK 2575, 152-154 cm. 17 - *S*.? cf. *azeri,* LV of female, АK 2575, 152-154 cm. 18 – *Loxocaspia*? *edita* (Schneider, 1962), RV of male, AK 521, 172-175 cm, 100 µm. 19 - *Paradoxostoma simile* Müller, 1894, RV of female, АK 2575, 8-10 cm, 100 µm. 20 - *Xestoleberis chanakovi* Livental in Schweyer, 1949, RV of female, АK 2575,156-158 cm. 21 - *Xestoleberis cornelii* Caraion, 1963, RV of male, АK 2575, 80-82 cm. Bar: 1-2 - 60 µm, 3-21 - 100 µm.