

MARINE RESOURCES AMONG PREHISTORIC CULTURES OF THE PRIMORYE REGION OF THE RUSSIAN FAR EAST

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ABSTRACT

Broad similarities and differences among the prehistoric cultures of the Russian Far East have focused upon several problems, such as the origins of the earliest coastal peoples, changes in human subsistence and the development of hunter-gatherer cultural complexity. Archaeological research in the Primorye Region evidence some interesting parallels for a comparative review of these problems.

The Primorye Region is a rich mosaic of prehistoric sites and cultures. Scholars have identified a number of Final Paleolithic period cultural complexes. The Neolithic cultures, with indications of maritime adaptation, are associated with the Middle Holocene period. Bronze and Early Iron Age cultures exhibit economies based upon a combination of early agriculture and cattle breeding, in combination with traditional hunting, fishing and gathering. The development of maritime subsistence activities are correlated with the late Holocene period. The transition of these cultural complexes is reviewed.

ENVIRONMENTAL BACKGROUND

In general, the coast of Primorye is mountainous with relatively narrow coastal plains. Many river valleys, of various sizes, transect the mountain range and provide a rich resource of anadromous fish. In the southern part of the region the coastline becomes irregular and difficult to penetrate. Sheltered bays and estuaries with occasional islands provide more diverse and abundant marine resources. The eastern coastline is straighter and more accessible with rocky shorelines and adjacent uplands. Communities of vegetation and terrestrial mammals provide greater productivity.

The landscape and climatic conditions on the southern and eastern coast of Primorye exhibited specific differences during the Final Pleistocene. After the Sartan (final) glacial maximum, climates gradually became warmer, although some of the most dramatic environmental changes took place across the Pleistocene-Holocene transition, between 12,000 and 8,000 years ago. A climatic optimum was reached at mid-Holocene, between 8,000 and 5,000 B.P. After this optimum, two

cold periods are identified between 5,000-4,500 B.P., and around 2,500-2,000 B.P. (Korotky et al. 1988:160).

Most of the shoreline in the south is narrow and rocky. These difficult to access habitats provide an abundance of mussel beds. Some major estuaries in the Peter the Great Bay provide habitats for a variety of clams and mussels, along with seasonal birds. During the Holocene optimum the environmental conditions in the Peter the Great Gulf were warmer and more humid than at present. Based on malacological data, one can assume that the water temperatures in the bights were also higher than at present, and in the semi-enclosed bays and lagoons the salinity was lower (Rakov 1995:39). The elevation of the Sea of Japan at that time was higher than today by two to three meters (Korotky et al. 1988:163; Korotky 1994:34). There were many shallow bays and lagoons in the river mouths which later disappeared due to the regression of sea levels at the end of the climatic optimum. The beginning of the Subboreal epoch (5,000-4,500 B.P.) was marked by a climatic cooling and the climate and

vegetation of the coast became much like that at present (Shumova 1995:31).

At the end of the Pleistocene Eastern Primorye was covered with forests of birch and larch with an admixture of oak, elm and linden. In the Early Holocene they were replaced by forests of spruce and birch with an increase in broadleaf trees (Korotky et al. 1988:160-162; Korotky 1994:38-40; Shumova 1995:30-31). The warmer climate of the optimum allowed more xeric vegetation to enter the area. Numerous rivers penetrate the mountains and open up the access to the interior regions with their more extensive riverine and terrestrial habitats. The dynamic coastal environment during the Late Pleistocene and Early Holocene appears to have increased the diversity and productivity of both the marine and terrestrial resources of Primorye leading to cultural and technological changes.

INITIAL MARINE RESOURCE USE IN THE COASTAL SITES OF PRIMORYE

Early sites exhibiting the use of marine resources have been found within terrestrial habitats 30 kilometers from the coast. These include the sites on the Zerkalnaya River Basin of Ustinovka 1, 3, 4 and 6, as well as the sites of Suvorovo 3, 4 and 6. These sites date from the Final Pleistocene and the inception of the Holocene (Kononenko et al. 1995:1; Kononenko 1996:31). Faunal remains are not preserved in these sites, but the presence of some stone tool industries in association with anadromous fish support the inference of seasonal fishing. Further evidence for this inference is the presence of stone fish effigies. One of these effigies has been found at the Ustinovka 1 site. This site is a microblade industry dating to 10,000-12,000 B.P. (Tabarev 1996:214). This tradition is well represented at Ustinovka 6 with two radio carbon dates of $11,550 \pm 240$ B.P. (GEO-1412), and $11,750 \pm 620$ B.P. (SOAN-3538). The site contains sub-prismatic cores, boat and wedge shaped microcores, bifaces, small tanged points and transverse burins (Kononenko 1996b:31-32).

Another fish effigy has been found at the site of Ustinovka 3, which exhibits a bifacial lithic tradition. The lithic technology of this site includes amorphous cores and different types of bifaces

such as knives, spear points, darts and arrowheads, along with adzes and early ceramics. Hiroshi Kajiwara indicates that this site lacks a microblade tradition and is dated typologically to approximately 12,000-10,000 B.P. (Kajiwara and Yokoyama 1996:100). On the basis of pollen spectra from the site and comparative typological analysis of the lithic industry, it is alternatively suggested that the occupation may be closer to 9,000-8,000 B.P. Analysis of several zones with concentrations of artifacts indicates that the Ustinovka 3 site was probably a seasonal base camp for hunters, fishers and gatherers. (Kononenko 1996a:133-134; Garkovik 1996:64-65).

Taken together, the evidence of transition within the lithic industry from a microblade to a bifacial technology, the fish effigies and other indications of a transition to a semi-sedentary way of life associated with the climatic fluctuations during the Pleistocene-Holocene border, suggest a new orientation of subsistence from hunting to intensive salmon fishing. This increasing focus on riverine and coastal adaptations is represented by the Rudninskaya and Boismanskaya Early Neolithic cultures correlated with the climatic optimum of the Holocene.

The key sites of the Rudninskaya culture are situated on the eastern coast of Primorye. Based on radio-carbon dating this culture existed between 6,000 and 7,500 B.P. (Orlova 1995:229). One of these sites is located about three kilometers from the coast; however, faunal remains are not preserved. The assemblage of artifacts consists of bifacial points, knives, end scrapers, polished axes and points, groundstone, and ceramics. There are stone effigies of birds and marine animals, such as ringed seal at this site (Tabarev 1996:214).

Another important cultural complex is the Chertovy Vorota cave site. This cave is situated about 30 kilometers from the shoreline and represents a terrestrially oriented habitat. Distinctive artifact types found in the cave include bifacial points, knives, sharpening stones, polished stone axes and points, ground and pecked stone tools and pottery. Also found at this site are bone and antler tools made into compound spears, barbed harpoons, awls and

bird bone needles. There are different types of articles and ornaments made of bone, shell, and wood as well as remnants of fishnets, seeds, acorns and nuts. The remains of a wide variety of large land mammals such as the brown and Asiatic black bear, deer, elk, Manchurian deer, goral, roe deer, wild boar, wolf, and some small game such as rabbits and rodents were also identified. Additionally, there are the remains of fish, as well as both marine and freshwater birds at the site. Evidence of shellfish exploitation is limited. Bivalve molluscs are represented by *Anadara broughtoni*, *Glycymeris yessoensis*, *Mizuhopecten yessoensis*, *Mytilus* and *Clinocardium*. *Anadara broughtoni* are now extinct and correspond to the warmer climatic conditions of the Holocene optimum (Rakov et al. 1996:200-201). All of the bivalve molluscs from the cave were related to an open bay complex.

The faunal remains from the Chertovy Vorota cave show a spatial variation that correlates with the distribution of potential terrestrial, riverine and marine species. They generally reflect the full diversity of game resources available in the area and terrestrial taxa dominate the faunal assemblage. However, increasing technological sophistication in fishing gear and the collection of plant and marine resources such as shellfish indicate an eclectic subsistence pattern with some marine orientation. It is important to note the relationship between the Chertovy Vorota cave and the Rudnaya site. Apparently, in the uplands, this cave was used in conjunction with a seasonal multi-activity coastal camp and was a semi-permanent riverine fishing and hunting settlement. The Rudnaya site is located within the coastal foraging radius. Some dwellings and the stone assemblage excavated at this site reflect an increasing tendency to a sedentary way of life with emphasis on riverine and marine fishing along with the gathering of shellfish and plants.

The second early Neolithic culture is represented by the Boismana 1 and 2 shell midden sites in the coastal zone of Southern Primorye. The chronological position of this culture has been determined by radio carbon dating of Boismana 2 to be between 5,000 and 6,500 B.P. (Popov 1996:195). The settlement patterns, stone and bone industries and faunal assemblages of these sites indicate an intensive

exploitation of marine resources and the development of a sedentary lifestyle. Some technological innovations have been identified. Artifacts, including milling slabs and pestles, indicate an increasing importance of processing of plant resources such as seeds and nuts. There are different types of bifacial and polished points, knives, axes, and scrapers, as well as various pebble tools (Popov and Kononenko 1995:523-546). Fishing equipment in the sites becomes diversified and includes stone net sinkers, shell and bone fishhooks, elaborate compound bone hooks and compound barbed harpoon points.

Faunal remains in the shell middens contain the bones of fish, land mammals, and birds. Fish remains are represented almost exclusively by inshore species such as grey mullet, sardine, scombroid herring, flat-fish, sea perch and dogfish. There are also salmon, whale, seal, sea lion and dolphin represented at the sites of Boismana 1 and Zaisanovka 3 (Vostretsov 1991:40, Besednov et al.1996:94). Among the shellfish remains there were 52 species of mollusc represented. Some of these can be used as climatic indicators such as the tropical species of *Meretrix lisoria*, *Anadara subcrenata*, *Glycymeris imperialis* and *Trapazium liratum* which are no longer found in Peter the Great Gulf and are associated with the Holocene climatic optimum. Both sites contain two ecological complexes of molluscs connected with an open bay environment (*Kcenocardium californiense*, *Anisocorbula venusta*, *Boreotrophon candelabrum*) and semi closed and lagoonal settings (Rakov 1995:38-44, Rakov et al. 1996a:196-199, Rakov et al. 1996b:200-203).

The faunal assemblages of the Boismanskaya Neolithic culture indicate that diverse resources were taken from a wide range of maritime, littoral and terrestrial environments during the Middle Holocene. The presence of marine fish and the abundance of other aquatic animals suggests the use of watercraft as part of an intensive exploitation of marine resources. This contributed to a more sedentary way of life. Approximately 5,000 B.P. the climatic deterioration began and many of the shallow bays and lagoons of Southern Primorye disappeared due to the regression of the level of the Sea of Japan (Korotky 1994:36, Rakov 1995:44). It is important to note that some

human skeletons were found at the Chertovy Vorota and Boismanska 2 sites and they have been identified as being affiliated with the Arctic population of Chukotia. It also appears that the Neolithic period populations of the Rudninskaya and Boismanskaya are related to one physical type (Chikisheva and Shpakova 1995:36).

During the next two millennia, associated with the final stage of the Neolithic and Bronze Ages, between 4,500 and 2,500 B.P., a number of significant cultural and technological changes occurred. Unfortunately, the coastal sites of the Late Neolithic and Bronze Ages have no faunal remains. However, the location of sites within the actual coast zone and the coastal foraging radius, the abundance of stone net sinkers and knives used for fish processing and the presence of effigy figures of sea animals reflects an intensification of riverine and marine fishing. Tool kits are generally represented by retouched and polished points, scrapers, knives, axes, milling slabs and pestles, and pebble tools. There are also some bronze items. This new technology, as well as indications of early agriculture are generally attributed to the intrusion of new ethnic groups whose economy was oriented towards terrestrial resources. Archaeological evidence from the sites of Zaisanovka 1, Valentin-Peresheek and Evstaphy Bay indicates that these groups established permanent and semi-permanent villages at both coastal and riverine locations (Andreeva et al. 1986:202-204).

The exploitation of marine resources continued to intensify into the Early Iron Age as expressed by the Yankovskaya culture. The geographic setting of many sites changed from the interior to the coast of Peter the Great Bay. However, inland villages located in the foothills were occupied largely on a sedentary basis by this time. The Early Iron Age of Primorye is correlated with the post optimal warming of the Holocene between 3,000 and 2,500 B.P. Climatic warming at this time was not so pronounced as at the optimum, but it appears to have been the most humid period. The sea level was also at a higher elevation than at present, marine resources with some thermophilous molluscs were more diverse and productive, and there was an increase in terrestrial resources along the coast (Verhovskaya and Kundiyshv 1993:23-26, Shumova 1995:30-

31, Rakov 1995:41). At this time the dietary importance of shellfish and marine fishing generally appears to increase. In addition, these large coastal and riverine settlements also hunted terrestrial mammals, gathered plant resources, cultivated millet and barley, and domesticated pigs, dogs, cattle and horse (Andreeva et al. 1986:161-174).

This shift in faunal remains is accompanied by changes in the culture's technology. The Late Holocene shell middens in Southern Primorye reflect an increase in groundstone, bone, antler, shell and pebble tools. Distinctive artifact types of the Early Iron Age include large ground slate points and knives, stone toggle harpoons, bone harpoons, composite bone hooks, polished stone axes, milling slabs and pestles, knife sickles, net sinkers, numerous types of ceramics, iron celts, and some bronze items. There are also a lot of decorative beads and ornaments which may be related to a gradual development of craft specialization. Some of the items such as ground slate points and knives as well as ornamental bone blades appear to imply a possible ceremonial purpose.

Shell middens from the Yankovskaya culture contain 23 species of mollusc. Such species as oyster *Crassostrea gigas*, and the mussel *Crenomytilur grayanus* predominate. The warmer water bivalve molluscs such as *Anadara subcrenata* are no longer present. Faunal remains include 25 species of fish in the following proportions: flat-fish 23%, scomber 16%, dogfish 13%, carp 9%, herring 8%, perch 6%, tunny-fish 23%, salmon 1%. There are some bones of sea mammals such as seals at the Pechaniy site. Land game includes bear, deer, wild boar, Manchurian deer, roe deer, elk, rabbit, as well as waterfowl (Andreeva 1986:162-165).

It is important to emphasize that from the Early Iron Age the increase in the frequency and size of sites within the Southern Coastal Region signified increased population densities and widespread interaction among groups and their neighbors in inland parts of the region. After 2,500 years ago the sea regression began and regional climate and vegetation shifted. The cooler climate has been associated with a shift in subsistence activities within the sites. These changes are reflected in

the development of agriculture and animal domestication, and an increasing level of cultural complexity during the following millennium.

CONCLUSION

Looking at the entire span of Primorye coastal prehistory, it seems likely that the evolution of a complex economy from hunting and gathering to that of fishing, marine adaptation and agriculture was a multi-variate process conditioned by environmental changes, increasing population densities, resource stress and cultural interaction. The changes in the coastal environment during the climatic optimum of the Middle Holocene (8,000-5,000 B.P.) and the post optimum warming of the Late Holocene (3,000-2,500 B.P.), associated with the Early Neolithic and Early Iron Age, led to the increasing exploitation of highly productive marine resources. This was especially true in the Southern Primorye area. During the same period the peoples of the Eastern Coastal Region developed riverine and marine fishing based upon seasonal salmon resources, in conjunction with traditional terrestrial hunting and gathering activities.

An increasing maritime focus, with extensive fishing during the Middle Holocene, is reflected in a general tendency to progress from high mobility to a semi-sedentary and sedentary lifestyle. The cooler climate of the Late Holocene is correlated with increased terrestrial plant and animal productivity and the development of agriculture and animal domestication, as well as craft specialization, rising population density, increased regional interaction and subsistence intensification. These changes are reflected in

the subsequent historic periods, including the Middle Ages.

Some similar trends of cultural evolution can be seen among cultures of the Pacific Rim which display a maritime orientation. This paper has served to summarize some current views on the earliest occupations of the Primorye Regions, the origin of coastal adaptations and the antiquity of various technological industries in the hope of inviting further scholarly attention and encouraging the development of collaborative joint research.

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