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By K. P. Barysheva

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Cumacea of the West Kamchatka shelf

By K.P. Barysheva

In 1962-1964 benthos collections were carried /258\* out on the West Kamchatka shelf by the ships "Izumrud", "Alatyr", and "Baidar". In the 119 samples taken by dredger /1243 (Fig. 1) Cumacea specimens were found which belonged to the following families: Leuonidae, 815; Dastylidae, 390; Lampropidae, 27; Pseudocumidae, 6; Nannastacidae, 3, and Bodotridae, 2 specimens. Cumacea were represented by twenty-six species and subspecies; a list of them is given below.

Some of the immature individuals and males need more exact species identification; therefore these are listed under the genera.

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Family of Lampropidae

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Lamprops quadriplicata typica Smith, 1880

"Izumrud", stations 56, 155; "Alatyr", station 434;

\*Translator's note. Numbers in the right margin indicate the corresponding pages in the original.

"Baidar", stations 145, 146, depth 10-56 m. Ten females of 4.0-10.5 mm length.

Lamprops serrata Hart, 1930

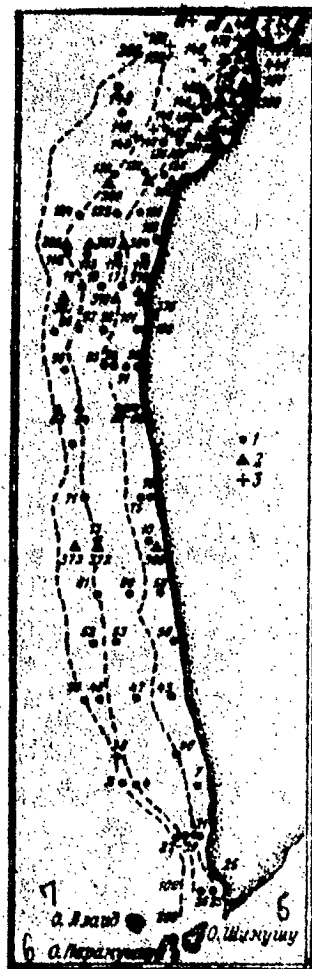
"Izumrud", stations 17 and 144. Depth 40-50 m. Two females of 4.5-6.5mm length. In the marsupium of the latter, eggs and juveniles were found.

Lamprops carinata Hart, 1930

"Izumrud", station 17; "Alatyr", station 400; "Baidar", station 14. Depth 6-25 m. Two females of 6 and 7 mm length. The latter had developed marsupium, and there was one juv. specimen. No earlier find of this was mentioned in Soviet waters.

Fig.1.

Stations on which Cumacea were found



1- collections by the medium trawler "Izumrud", 1962; 2- Collections by the medium trawler "Alatyr", 1963; 3- Collections by the medium trawler "Baidar", 1964; 4- Shimushu Island; 5- Paramushir Island; 6- Alaid Island.

Lamprops sp.

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"Izumrud", stations 19, 58, 91, 155; "Baidar", stations 58, and 124. Depth 11-100 m. Seven specimens, one of these was a male.

Hemilamprops sp.

"Alatyr", 1963, station 398. Depth 80 m. One male of 5.5 mm length.

Family Diastylidae

Diastylis alaskensis Calman, 1912

"Izumrud", 1962, stations 7, 17, 29, 43, 75, 88, 90, 92, 101, 116, 128, 155, 158; "Alatyr", 1963, stations 393, 400, 431, 434, 436, 441; "Baidar", 1964, stations 14, 145. Depth 6-50 m. Thirty specimens, males and females. Lengths from 4 to 14 mm. In June and July eggs or young were found in the marsupium of the females.

Diastylis bidentata Calman, 1912

"Izumrud", 1962, stations 3, 4, 7, 10, 17, 27, 29, 40, 43, 52, 58, 75, 84, 93, 116; "Alatyr", 1963, stations 369, 381, 387, 400, 402, 431, 470; "Baidar", 1964, stations 55, 58, 60, 140, 146. Depth 15-200 m. Forty-two females and seven males, of these, three were in breeding-dress. Some of the females had juveniles in June, and eggs in August in their marsupium. Lengths from 5 to 15 mm.

Diastylis paraspinulosa Zimmer, 1926

"Izumrud", 1962, station 114; "Alatyr", 1963,

stations 373, 381, 388. Depth 60-150 m. Six females of about 9 mm length.

Diastylis hirsuta Lomakina, 1955

"Baidar", 1964, station 148. Depth 100 m. Two females of 5 and 6 mm length.

Diastylis sp.

"Izumrud", 1962, stations 52, 71, 86, 91, 93, 114, 128, 129, 146; "Baidar", 1964, stations 61, 147. The majority of the specimens were immature.

Leptostylis villosa Sars, 1869

"Izumrud", 1962, stations 52, 82, 83, 96, 124; "Baidar", 1964, station 148. Depth 100-200 m. Six females of 3,5-6,0 mm length, two of these had young in their marsupium.

Brachidiastylis resima Kröyer, 1846

"Alatyr", 1963, station 388; "Baidar", 1964, station 148. Depth 100 m. Seventeen females of 2.0-5.5 mm length.

Brachidiastylis sp.

"Izumrud", 1962, stations 38, 112, 130. Depth 100-200 m. Five females of 5 mm length.

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Diastylopsis dawsoni forma calmani Derzhavin, 1926

"Izumrud", 1962, stations 31, 76, 102, 118, 157; "Alatyr", 1963, stations 375, 376, 385, 391-393, 399, 406, 441, 468; "Baidar", 1964, stations 14, 23, 57, 142, 145. Depth 5-25 m. Hundred and seventy one females of 3-14 mm length.

In June, the females had eggs in their marsupium.

Family of Pseudocumidae

Petalosarsia declivis Sars, 1864

"Izumrud", 1962, stations 84, 86, 97; "Baidar", 1964, stations 147, 148. Depth 50-100 m. Three females and two males of 3.5 mm length.

Family of Leuconidae

Eudorellopsis deformis Krøyer, 1864

"Izumrud", 1962, stations 17, 25, 47, 50, 87, 121, 128, 137, 155, 157; "Alatyr", 1963, stations 385 and 434; "Baidar", 1964, station 146. Depth 7-60 m. Fifty-three females and thirteen males of 3.5-5.0 mm length. In August and at beginning of September, seven females had eggs in their marsupium.

Eudorellopsis integra Smith, 1880

"Izumrud", 1962, stations 26-28, 112-114, 122, 129, 130, 136; "Alatyr", 1963, station 388. Depth 56-130 m. Three hundred and fifty seven females and thirty one males of 3.5-5.5 mm length.

Eudorellopsis Ushakovi Lomakina, 1955

"Izumrud", 1962, stations 83 and 96. Depth 150-200 m. Six females and two males of 4 mm length.

Eudorellopsis biplicata Calman, 1912

"Izumrud", 1962, stations 38, 47, 82, 98, 130. Depth 60-150 m. Five females and two males of 2-6 mm length.

Eudorella emarginata Kröyer, 1846

"Izumrud", 1962, stations 19, 26, 27, 49, 52, 61;  
 "Alatyr'", 1963, station 382. Depth 80-130 m. Sixteen females  
 and eight males of 5-11 mm length. A portion of the females  
 had eggs in their marsupium and three males, two of these  
 in breeding-dress.

Eudorella pacifica Hart, 1930

"Izumrud", 1962, stations 17, 19, 26, 27, 38, 60, 97,  
 98, 112-114, 122, 129, 130, 136, 148; "Alatyr'", 1963,  
 stations 378, 381, 39; "Baidar", 1964, stations 138, 146-148,  
 Depth 50-175 m. Hundred and twenty five females and thirty-  
 two males. In June the males were in breeding-dress and the  
 females had eggs or juveniles in their marsupium.

Eudorella sp.

"Izumrud", 1962, stations 38, 48, 52, 82, 112, 129,  
 Depth 60-150 m. Six females and one male of 3-10 mm length,  
 the larger females had eggs in their marsupium.

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Leucon nasica orientalis Lomakina, 1952

"Izumrud", 1962, station 26. Depth 80 m. One female  
 of 8 mm length and one male of 12 mm length is breeding-  
 dress.

Leucon nasicoides pacificus Zimmer, 1937

"Baidar", 1964, station 60. Depth 70 m. Three females  
 of 5.5mm length.



Leucon kobjakovae Lomakina, 1955

"Izumrud", 1962, stations 17, 87, 98, 114; "Baidar", 1964, stations 146-148. Depth 35-100 m. Hundred and five females and eleven males 3.5-5.0 mm long.

Leucon sp.

"Izumrud", 1962, stations 26-28, 52, 129, 130, 146; "Baidar", 1964, stations 61, 148. Ten females and one male.

Family of Nannastacidae

Campylaspis clavata Lomakina, 1952

"Izumrud", 1962, station 50. Depth 200 m. One specimen of 8 mm length.

Campylaspis crista Lomakina, 1955

"Baidar", 1964, station 148. Depth 100 m. One specimen of 3.2 mm length.

Family of Bodotriidae

Vaunthompsonia pacifica Zimmer, 1943

"Baidar", 1964, station 60 in the mouth of Shelikov Bay. Depth 70 m. Two females of 7 mm length.

Concerning the Sea of Okhotsk, N. B. Lomakina (1962) named 44 species and 4 subspecies of Cumacea. In our material 23 species and 3 subspecies were found. Of these, three species, i. e. Lamprops carinata, Campylaspis clavata, and C. crista, were found for the first time in the Sea of Okhotsk.

In Table 1., according to the data of N. B. Lomakina (1958) and our data (1964, 1965), the geographical distribution is given of those species which occur on the West Kamchatka shelf. Of the 26 species and subspecies 8 are common for the Northern Pacific and the Northern Atlantic; 7 species are common for the Northern Pacific and Polar Basin. Sixteen species and subspecies are specific only for the Pacific Ocean. This confirms the opinion of N. B. Lomakina about the significant species and subspecies endemism of the Cumacea fauna of the Far Eastern waters,

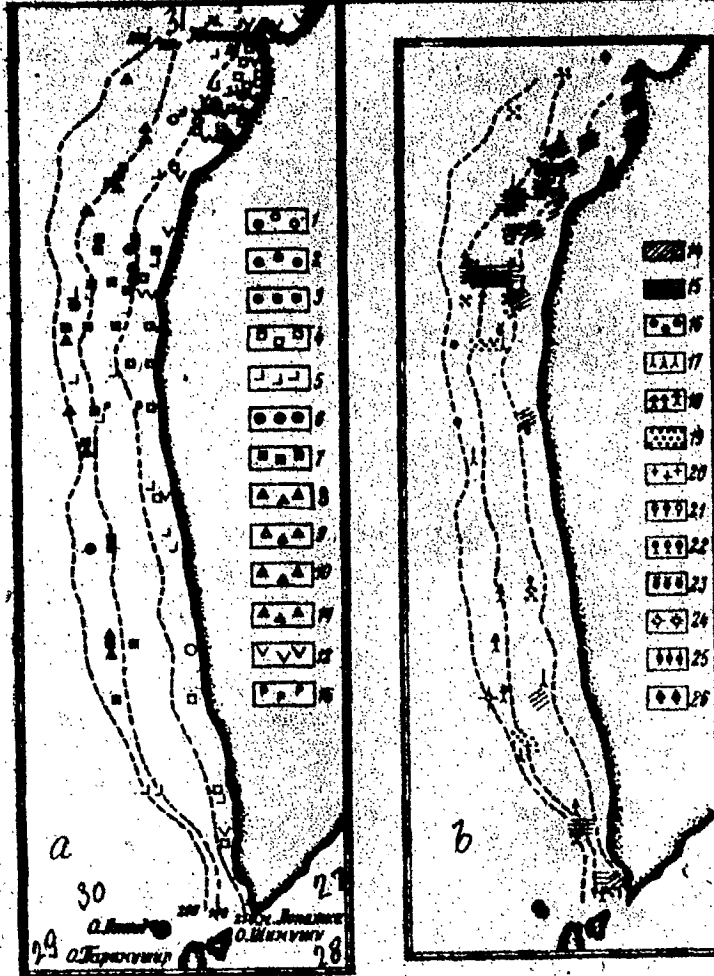
In Table 2., the species found in our material are distributed by zoogeographical complexes in accordance with the zoogeographical zoning of the Far Eastern waters carried out by L. G. Vinogradov (1948).

As it may be seen from the Figures 2a and b, and Table 2., Lamprops quadriplicata typica, Diastylis alaskensis and Diastylopsis dawsoni f. calmani occur in the shallow waters where the temperature fluctuation is the greatest. To these are adjoined Eudorellopsis deformis, Vaunthompsonia<sup>\*</sup> and pacifica, Diastylis bidentata. The latter sinks deeper, and together with Eudorellopsis integra, Eudorella emarginata and Diastylis koreana, occupies the lower horizons of the shelf. Eudorellopsis ushakovi, Campylaspis clavata, and Brachydiastylis resima occur at 200 m depth (this is the maximum depth for taking benthos samples).

\* Revisor's note. Appeared in original text as Vaunthopsonia.

Fig. 2.

## Distribution of Cumacea on the West Kamchatka shelf /264



a—1—*Lamrops quadruplicata* typica; 2—*Lamrops serrata*; 3—*Lamrops carinata*; 4—*Diastylis alaskensis*; 5—*Diastylis bidentata*; 6—*Diastylis paraspiculosa*; 7—*Diastylis koreana*; 8—*Diastylis ornata*; 9—*Diastylis hirsuta*; 10—*Leptostylis villosa*; 11—*Brachydiastylis resima*; 12—*Diastylopsis arctica* forma calmani; 13—*Petalosarsia declivis*; 14—*Eudorellopsis deformis*; 15—*Eudorellopsis integra*; 16—*Eudorellopsis ushakovi*; 17—*Eudorellopsis duplicata*; 18—*Eudorella emarginata*; 19—*Eudorella pacifica*; 20—*Eudorella dentata*; 21—*Leucon nasica orientalis*; 22—*Leucon nasica pacificus*; 23—*Leucon kobjakovae*; 24—*Campylaspis clavata*; 25—*Campylaspis crispata*; 26—*Vaunthompsonia pacifica*.

27— Cape Lopatka; 28— Shimushu Island; 29— Paramushir Island;  
30— Alaid Island. 31— Cape Yuzhnyi

Table 1.

## Geographical Distribution of Cumacea found on the West Kamchatka Shelf

Географическое распространение кумовых раков, встречающихся на западнокамчатском шельфе

Вид	Тихий океан										Северный Ледовитый океан						Северная часть Атлантического океана			
	Берингово море	Охотское море		Японское море (северная часть)	северо-западная часть Тихого океана	субтропическое побережье Азии и Южной Японии	Тихоокеанское побережье Северной Америки	Арктическое побережье Северной Америки	Чукотское море	Восто-по-Сибирское море и море Лаптевых	Карское море	Белое море	Баренцево море	Шпицберген	Побережье Норвегии	Побережье Западной Европы	Побережье Исландии и Восточной Гренландии	Побережье Западной Гренландии	Пролив Девина	Атлантическое побережье Северной Америки
		по литературе	западно-камчатский шельф, по данным 1962-1964 гг.																	
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<b>Lampropidae</b>																				
<i>Lamprops quadruplicata</i> typica Smith	+	+	+	+			++													+
<i>L. serrata</i> Hart	++	+	++				++													
<i>L. carinata</i> Hart	+		+				+													
<b>Diastylidae</b>																				
<i>Diastylis alaskensis</i> Calman	+	+	+	+			+		++											
<i>D. bidentata</i> Calman	+	+	+	++			+		+											
<i>D. paraspinulosa</i> Zimmer	+	+	+	++			+			+										
<i>D. koreana</i> Calman			+	++		+	+													
<i>D. ornata</i> Lomakina		+	+	++			+													
<i>D. hirsuta</i> Lomakina	+	+	+	++			+													
<i>Leptostylis villosa</i> Sars	+	+	+	++			+								+	+	+		+	+
<i>Brachidiastylis resima</i> Kröyer	+	+	+	++			+			+	+	+	+	+	+	+	+		+	+
<i>Diastylopsis dawsoni</i> forma calmani Derzhavin	+	+	+	+																
<b>Pseudocumidae</b>																				
<i>Petalosarsia declivis</i> Sars	+	+	+	+							+	+	+	+	+	+	+	+	+	+

1-Pacific Ocean; 2- Arctic Ocean; 3- Northern part of the Atlantic Ocean; 4- Sea of Okhotsk; 5-Bering Sea; 6- data from the literature; 7- West Kamchatka shelf, data from 1962-1964; 8- Sea of Japan (Northern part); 9- Northwestern part of the Pacific Ocean; 10- subtropical seaboard of Asia and Southern Japan; 11- Pacific seaboard of North America; 12- Arctic seaboard of North America; 13- Chukotsk Sea; 14- East Siberian Sea and Laptev Sea; 15- Kara Sea; 16- White sea; 17- Barents Sea; 18- Spitsbergen; 19- Seaboard of Norway; 20- Seaboard of Western Europe; 21- Seaboard of Iceland and Eastern Greenland; 22- Seaboard of Western Greenland; 23- Davis strait; 24- Atlantic seaboard of North America.

Table 1.  
Continuation

Geographical Distribution of Cumacea Found on the West Kamchatka Shelf

Продолжение табл. 1

Вид	Тихий океан <sup>1</sup>				Северный Ледовитый океан <sup>2</sup>								Северная часть Атлантического океана <sup>3</sup>								
	Берингово море	Охотское море <sup>4</sup>			Японское море (северная часть)	северо-западная часть Тихого океана	субарктическое побережье Азии и Южной Японии	Тихоокеанское побережье Северной Америки	Арктическое побережье Северной Америки	Чукотское море	Восточно-Сибирское море и море Лаптчевых	Карское море	Бовле море	Ирландское море	Шпицбергия	Побережье Норвегии	Побережье Западной Европы	Побережья Исландии и Восточной Гренландии	Побережье Западной Гренландии	Путь до Дании	Арктическое побережье Северной Америки
		по литературе	западнокаледонский шельф по Даниэлю 1962-1964 гг.																		
<b>Leuconidae</b>	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
<i>Eudorellopsis deformis</i> Kröyer	+	+	+	+												+	+	+			
<i>E. integra</i> Smith	+	+	+	+			+	+	+												
<i>E. mahakovi</i> Lomakina	+	+	+	+																	
<i>E. biplicata</i> Calman	+	+	+	+																	
<i>Eudorella emarginata</i> Kröyer	+	+	+	+			+	+	+	+			+	+	+	+	+	+	+	+	
<i>E. pacifica</i> Hart	+	+	+	+			+	+	+												
<i>E. dentata</i> Lomakina	+	+	+	+	+																
<i>Leucon nasica orientalis</i> Lomakina	+	+	+	+			+	+	+												
<i>L. nasicoideus pacificus</i> Zimmer	+	+	+	+																	
<i>L. kobjakovae</i> Lomakina	+	+	+	+																	
<b>Nannastacidae</b>																					
<i>Campylaspis clavata</i> Lomakina			+	+																	
<i>C. crista</i> Lomakina	+		+	+																	
<b>Bodotriidae</b>																					
<i>Vaanthopsonia pacifica</i> Zimmer	+	+	+	+			+														

Distribution of Cumacea found on the West Kamchatka  
shelf according to zoogeographical complexes

Species	Complexes acc. to Hofsten	Geographical characteristics acc. to L.G.Vinogradov	Distribution acc. to data in literature
Diastylis bidentata	Arctic- boreal	Widely distribu- ted in the Chukotsk Sea or in the Arctic beyond its borders, common in the Bering Sea and in the Seas of Okhotsk and of Japan, eurybathic	Northern Pacific Chukotsk Sea, East Siberian Sea
Brachidiastylis resima			Arctic-boreal, Northern waters of the Atlantic, Northern Atlantic, Northern Pacific
Leptostylis villosa			Amphiboreal. Northern waters of Atlantic, Northern Atlantic, Northern Pacific
Eudorellopsis integra			Amphiboreal, Amphiarctic. Not observed in Europe.
Eudorella emar- ginata			Amphiboreal. Northern waters of the Atlantic
Leucon nasi- coides paci- ficus			Northern Pacific
Petaloarsia declivis			Amphiboreal, Amphiarctic
Lamprops quadripli- cata typica	Low- arctic- boréal	Distributed in the Chukotsk Sea along the American coast to Cape	Far-Eastern waters, Vancouver Island, Newfoundland
Diastylis alaskensis		Lisburne. Along the Asian coast south to North Korea; prevalent in the coastal shallow water	Northern Pacific

Table 2.  
continued

Species	Complexes acc. to Hofsten	Geographical characteristics acc. to L.G. Vinogradov	Distribution acc. data in literature
Leucon kobjakovae			Northern Pacific
Diastylis paraspiculosa	Subarctic- boreal	Widely distribu- ted in the Northern Pacific; do not surmount the Anadyr fauna barrier; prevalent in the upper hori- zons of the slope	Northern Pacific Western Pacific Amphiboreal
D. hirsuta			
Eudorellopsis biplicata			
E. ushakovi			Northern Pacific
Eudorella dentata			Northern Pacific
Lamprops serrata	Boreal	Widely distribu- ted in the Northern Pacific; do not surmount the Anadyr fauna barrier; prevalent on the shelf	Northern Pacific Northern Pacific Amphiboreal
L. carinata			
Eudorellopsis deformis			
Eudorella pacifica			Pacific boreal
Leucon nasica orientalis			Northern Pacific
Diastylis koreana			Northern Pacific, subtropic coasts of Asia and Southern Japan
D. ornata			Western Pacific
Diastilop- sis dawsoni forma calmani			Western Pacific
Campylapsis clavata			Pacific boreal, Sea of Japan



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