Supplement 1 to the data paper 'Data on zooplankton occurrence and abundance in the Far East seas and adjacent Pacific Ocean waters'

Additional information on the collection, processing and storage of raw data, which served as the basis for creating tabular reference books, necessary for dataset correct understanding and use

In the Pacific Branch of Russian Federal Research Institute of Fisheries and Oceanography (TINRO) all the samples of primary materials of oceanographic and trawl surveys were conducted centrally in a common format according to strictly verified rules in the laboratory of the TINRO regional data centre (Volvenko, 2014a, 2015d), where there is an archive office and a specialized database (DB), where the data can be openly accessed in a prescribed manner in raw or processed form. The situation is more complicated when plankton measurements were taken spontaneously and randomly by individual experts whose data was written in personal notebooks, or after the emergence of personal computers, on spreadsheets (often Microsoft® Office Excel) in an arbitrary format. This data was only accessible and understandable to one person, not comparable with similar data from other scientists, and may have been irrevocably lost in the event of his or her dismissal (or death), or simply due to negligence, improper storage, careless handling, etc. Until finally, during the implementation of the Concept of Information Support (CIS) for fundamental and applied research (Volvenko, 2015a, 2016) after the macrofauna pelagic and bottom trawl DBs (Volvenko, Kulik, 2011; Volvenko et al., 2012, 2014a, b; Volvenko, 2014b, 2015b), the new, large DB "*Net zooplankton in the North Pacific, 1984-2013*" (Volvenko et al., 2016) was created by TINRO in 2012-2014, put into trial operation 2015, and officially registered in the State Register of the Russian Federation in 2016.

Raw data for new DB is taken from plankton processing cards (Fig. S1), filled in (by hand on paper forms and/or in the form of spreadsheets) by TINRO employees during comprehensive ecosystem surveys in the North Pacific and the eastern sector of the Arctic. Of the many hundreds of scientific and commercial surveys only 235 were selected for data processing (Fig. 1); those where samples were taken by the same sampling gear, and processed in strict accordance with the procedures adopted by TINRO in the 1980s (see Materials and Methods), and where all zooplankton groups were fully and thoroughly counted.

Fig. S1. One of the standard forms for processing plankton samples (from Volkov, 2008a). There the zooplankton size fractions are designated by the abbreviations: SF – small (fine), MF – mean and LF – large (coarse) fraction

Along with other data the DB includes more than 1,100 samples collated from non-Russian ships. The fishing vessel "Sea Storm", the research ships "Oscar Dyson" (USA) and "Kaiyo Maru" (Japan) carried out simultaneous trawl and plankton surveys mostly in the central and eastern parts of the Bering Sea[1] under the international program BASIS (Bering-Aleutian Salmon International Survey), organized by the NPAFC (North Pacific Anadromous Fish Commission) member countries in 2002-2012. In the Sea of Japan 95 measurements in 1999-2007 were taken on board the Japanese fishing schooner Chokai Maru. All these ships had TINRO planktonologists who collected samples with the same gear and processed them following TINRO protocols. Plankton samples in the exclusive economic zone (EEZ) of North Korea (see Fig. 1) were taken from Russian ships, which were carrying out standard

---

[1] These expeditions recorded the impact of prolonged climatic fluctuations on plankton and, as a consequence, on the nutrition of fish living there, including the Pacific salmon (e.g.: Volkov et al., 2009; Volkov, 2012, 2014), which these expeditions were organized to study.

comprehensive studies of the biological resources under an intergovernmental agreement. Therefore, all the data in the DB, regardless of the place and time of its collation, are fully comparable.

In fact, the DB preparations began with the preliminary digitization of the primary data by TINRO planktonologists in Excel spreadsheets. Upon its completion, Dr. A.F. Volkov kindly gave me the file (168 MB) with four tables measuring 244 columns by 41,809 rows, which contained information about the measurements taken in the Chukchi and Bering seas, the Sea of Okhotsk and the North Pacific Ocean, with data on abundance (specimens/m^3) and biomass (mg/m^3) of plankton caught by the Juday net, calculated with corrections made for catch efficiency and information about the values of these corrections. Similar tables (14 MB) from the Sea of Japan but without data on plankton biomass were drawn up by Ph.D. N.T. Dolganova. Such planktonology tables were satisfactory for many years[2]. The significant disadvantages of this approach to data storage and processing were discovered only recently as the data accumulated.

By 2014, in accordance with the plans for the implementation of the CIS, I combined and transformed these tables into a relational DB using Microsoft® Office Access. Some of the obvious benefits of this form of storage are given in Table S1.

Table S1. Comparison of the two forms of storage of plankton cards – before and after the creation of the database

Initial spreadsheet	Final relational database
A huge number of columns (variables) in which most of the values are zero for species that were not found*	No extra variables or zeros**
For each measurement the 'header' of the card is duplicated seven times	No repeats – all records are unique
Lots of text values	The text is replaced by numerical codes (less space and faster processing)
Contains data and calculation results	Only raw data is stored
Typos '.' instead of ',' or suchlike give errors	It is impossible to make a mistake in the data format or make a typo in Latin (scientific) species names
There are restrictions on the number of rows and columns	The amount of stored data is not limited
Only the simplest options are available for sorting and retrieval of data at low speed with a large size of the file	The file is much smaller, there are more options and the speed of data processing is much faster

Notes: * - In the Initial spreadsheet, each station had a list of all species that were ever caught. Those that were present at this station were opposed by the values of their abundance and biomass in the sample, against the rest we had zeros. ** - The database does not need to store zero values of abundance and biomass of all absent species for each station. Moreover, each station associate with a list of only those species that were present at it. When processing a request to the database at those stations where some species is absent, its abundance and biomass are automatically assigned zero values.

In the development of this DB structure (Fig. S2) industry standards, standard forms, and codifiers (Fisheries, 1976; Codifier, 1980; Instructions, 1982) were utilized, as well as previous experience in creating the DBs of trawl macrofauna (Volvenko et al., 2012, 2014a, b). While working on the raw data thousands of typos and omissions were found. In particular, coordinates, names of bodies of water and region numbers, sampling dates and times, time of day, light or dark, ship names and survey numbers, synonyms and obsolete names of species, classification of size groups in the wrong fractions, absent and/or incorrect abundance values N and biomass M were corrected; duplicate records were removed, data format errors were eliminated.

In addition, records for the Chukchi and Bering seas, the Sea of Okhotsk, the Sea of Japan and the Pacific Ocean were found and outliers for the average individual weight of specimens $W = M/N$ (mg/specimen) were corrected. The errors were due to the incorrect number values N (specimens/m^3) or biomass M (mg/m^3) species in the catch: where the values W were different from the well-known values for this species of the long-term annual average modulus[3] by more than 20%, the abundance indices

---

[2] In some publications (e.g.: Dulepova, 2014; Volkov, 2015), they were called "Plankton databases", before data on them was imported into the real DB.

[3] They are taken from standard wet weight tables (Borisov et al., 2004) as amended and supplemented by Dr. Volkov.

were recalculated using the formulas $N = M/W$ and $M = N \cdot W$ based on the long-term annual average W. The fact that (according to information received from data collators) until 1988 inclusive, the processing of samples accurately assess biomass, and since 1989, number. Accordingly, in the first case, N of organisms was calculated by M, and in the second, M by N.
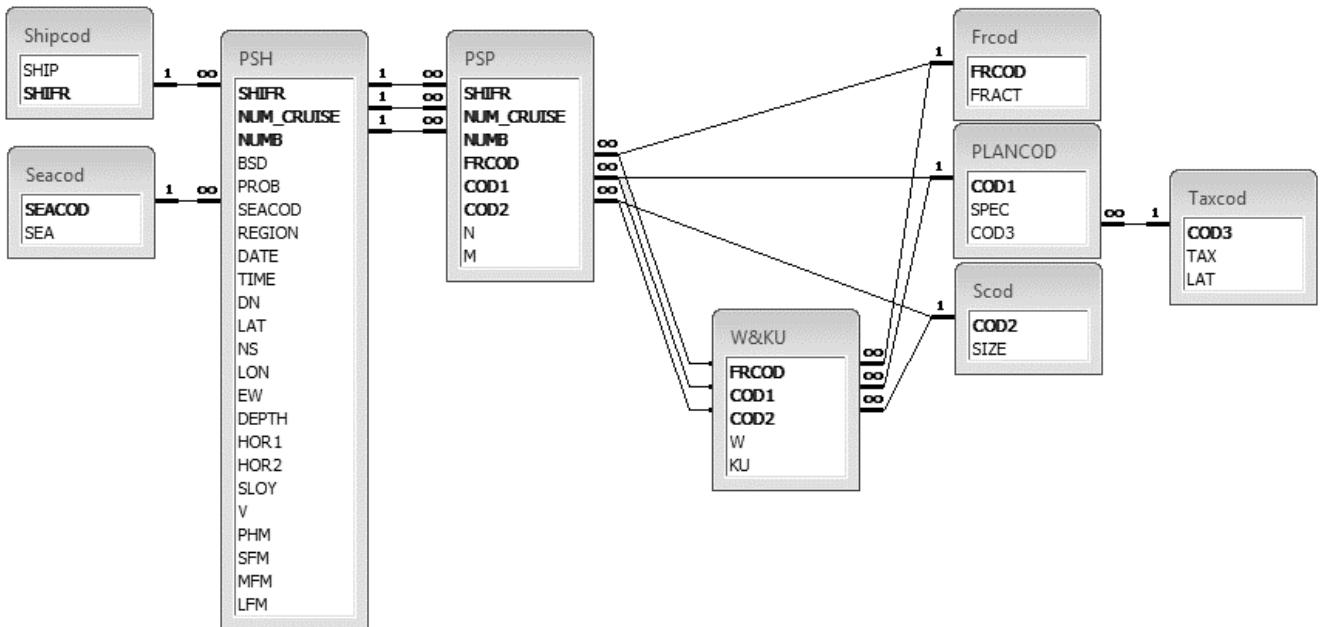
Fig. S2. Structure of the database. The PSH table contains the 'headers' of plankton cards (see Fig. 2): vessel call-sign (SHIFR), voyage number (NUM_CRUISE), sequential sample number from the beginning of the voyage (NUMB), station number recorded in the card (BSD), number of sample at the given station (PROB), sea and ocean code (SEACOD), region number (REGION), date (DATE) and time (TIME) of sampling, light or dark time of day (DN), latitude (LAT), northern or southern hemisphere (NS), longitude (LON), eastern or western hemisphere (EW), depth of area (DEPTH), initial (HOR1) and final (HOR2) catch depth, catch layer (SLOY), caught water volume (V), total biomass of phytoplankton (PHM), small (SFM), medium (MFM) and large (LFM) zooplankton fractions. The PSP table contains data from the card rows: in addition to the first three mentioned above it includes the fraction (FRCOD), species (COD1), size group or developmental stage (COD2) codes, data on abundance (N) and biomass (M). The W&KU table contains data on the average weight of specimens (W) and the catch efficiency coefficients (KU). All the other tables – codifiers: Shipcod – ships, Seacod – reservoirs, Frcod – fractions, PLANCOD – species, Taxcod – supraspecific taxonomic units, Scod – size groups and developmental stages of specimens. Key fields are highlighted in bold. All the links between the tables are "one-to-many"

As already mentioned above, initially there was a lack of data on biomass in the Sea of Japan. Using the available data on N and the long-term annual average W, taken from standard tables on wet weight (Borisov et al., 2004; Mikulich, Rodionov, 1975), amended and supplemented by Dr. Dolganova, M plankton was calculated for each sample according to the formula $M = N \cdot W$.

Then the occurrence of every species of each of the fractions in the surveyed waters was mapped. From this process any species found extremely far beyond their well-known geographical range were corrected, and given the names of species which look similar to the former, but are common in the survey area.

Thereafter, data on the relative abundance of marine organisms classified per cubic meter was reconverted to primary measurements while factoring in catch efficiency. Now the DB does not contain the results of calculations, but the raw data for them: the data of actual measurements and the list of adopted corrections regarding catch efficiency for each species. As a result, unrequired fields were deleted from the DB, and its size decreased to 52.6 MB. The initial tables, in the form in which they were prepared by Volkov and Dolganova, only now without mistakes, are instantly accessible via simple DB queries. It is now possible to recalculate N and M, if necessary, with the adoption of other catch efficiency coefficients.

So in this way the work on the creation of this DB was almost completed in 2014, but it was only officially registered in the State Register of the Russian Federation at the beginning of 2016. In accordance with the regulations stipulated in the CIS (Volvenko, 2015a-c, 2016) almost all of 2015 was spent on a final verification of the information contained in the DB, via its derivative knowledge bases,

including not raw data but results of their mathematical processing. In tandem with this verification reference tables on plankton in the Far Eastern seas and the northwestern part of the Pacific Ocean were drawn up.

For N and M of each taxonomic group of animals at each stage of development or size group in each fraction per the cubic meter (respectively in specimens/m^3, and mg/m^3), for each plankton sample (see Fig. 1) were recalculated as:

$$N = \frac{n \cdot p}{v} = \frac{n \cdot p}{0,1 \cdot (h_1 - h_2)} \quad \text{and} \quad M = \frac{m \cdot p}{v} = \frac{m \cdot p}{0,1 \cdot (h_1 - h_2)},$$

where: n – number (specimen) and m – weight (mg) of this species/stage/group/fraction in the catch; v – volume, filtered by the net (m^3); h_1 – initial, h_2 – final catch depth (m) determined taking into account the angle of inclination of the cable (e.g. Volkov, 2008a). h_1–h_2 – net distance covered (m); p – dimensionless correction of catch efficiency; constant 0.1 – the net mouth area (m^2).

This formula differs from the standard ones by the correction p, compensating for the underestimation of N and M, due to the imperfection of the sampling gear. This correction (the need for which is recognized by many, e.g.: Clutter, Anraku, 1968; Kiselev, 1969; Grese et al., 1975; Musaeva, Nezlin, 1996; Gorbatenko, Dolganova, 2006, 2007; Volkov, 2008a), is the inverse of the catch efficiency coefficient. According to the classic definition, the catch efficiency coefficient is the ratio of the number of animals caught to the entire number of animals that were in the catch area (Baranov, 1933). It introduces a multiplier in the denominator of the formulas to calculate the density of marine macrofauna (see, for example: Shuntov, Bocharov 2003a, b, 2004a, b, 2005a, b, 2006a, b, 2012a-c, 2014a-e) and can vary from 0 to 1. The reciprocal value (the catch efficiency correction) usually used by TINRO planktonologists ($p \geq 1$) introduces a factor in the numerator. The value of p depend on the taxonomic affiliation, fraction, developmental stage, size of animals and vary from 1 to 10 (see Dolganova, Volvenko, 2016a, b; Volkov, Volvenko, 2016a-c). Comparisons of the catchability of the large Juday net with other plankton nets have been published earlier (Kiselev, 1969; Timonin, 1983; Musaeva, Nezlin, 1996; Gorbatenko, Dolganova, 2006, 2007).

Subsequently, based on the relative values of M we may calculate the absolute abundance of thousands of tons of each species, the individual stages of their development, size classes, supraspecific taxonomic and ecological groups, fractions, the total zooplankton for various water layers and the time periods in the standard areas of biostatistical data averaging (Fig. 1). All this was submitted to planktonologists for verification. When errors were detected the raw data was edited, and the entire procedure above was repeated. This cycle continued until all errors were eliminated and the DB acquired its final form.

The resulting DB is a consolidated, structured, carefully verified and edited compact data array[4] that is optimized for its comprehensive high-speed processing. It contains information on 25,512 plankton samples (Fig. 1, Table S2) performed from 27 April 1984 to 12 September 2013 in 235 surveys, with data on 214 taxonomic groups (Table S3).

In preparation for the tabular reference books (Fig. S3) discussed in the article, some irremovable shortcomings of data were found:

Firstly, it is the incomplete coverage of the surveyed area. The overwhelming majority of plankton collections were conducted in the Russian EEZ (see Fig. 1). Of the four Far Eastern seas only Okhotsk was almost entirely located within it, so the measurements, and thus the data produced in our surveys only this particular area is covered almost entirely, and even then with the exception of coastal waters. Nearly all the planktonic work was carried out before or immediately after macrofauna trawls, and because of this, the vast majority of measurements were taken at depths of at least 25-30 m (corresponding to the minimum vertical opening of the majority of midwater trawls). In addition to this, conducting surveys near the coast and far out at sea in large research vessels has always been impeded by the red tape associated with the repeated crossing of maritime borders, and smaller vessels do not work at a considerable distance from their ports. As a consequence, plankton belonging to the coastal

---

[4] The minimum database configuration is a Microsoft Access 52.6 MB file which contains 9 tables (see Fig. S4) and 35 queries. As new data is added and ways to process it (forms, queries, reports, macros, program modules, auxiliary tables), its size can increase indefinitely.

(neritic) biotope is covered only by its seaward periphery. Only in the Sea of Japan is much of the data collected using small tonnage seiners and boats, which are capable of working off the coast in shallow waters. Therefore, the plankton neritic zone in the Sea of Japan (especially in the Peter the Great Bay, and in the Northern Primorye) is studied more fully than in the Okhotsk, Bering and, especially, Chukchi seas.

Table S2. The inter-annual fluctuations of survey intensity (number of plankton samples)

Year	Chukchi Sea	Bering Sea	Sea of Okhotsk	Sea of Japan	Ocean waters	Total
1984	0	0	150	0	0	150
1985	0	0	152	75	1	228
1986	0	134	175	22	2	333
1987	1	214	0	0	117	332
1988	0	245	185	131	0	561
1989	1	175	0	223	1	400
1990	0	296	122	126	13	557
1991	0	78	191	163	152	584
1992	0	68	297	76	8	449
1993	0	155	379	68	306	908
1994	0	0	384	106	76	566
1995	0	106	388	138	205	837
1996	0	0	344	143	45	532
1997	0	0	281	39	0	320
1998	0	79	544	51	14	688
1999	0	281	428	26	9	744
2000	0	243	458	61	13	775
2001	0	186	451	57	13	707
2002	0	140	544	31	70	785
2003	18	332	157	195	94	796
2004	0	210	419	189	217	1035
2005	0	373	462	299	56	1190
2006	0	240	90	202	253	785
2007	23	389	585	521	97	1615
2008	25	336	481	427	149	1418
2009	0	481	643	528	506	2158
2010	37	546	424	363	467	1837
2011	0	357	657	306	239	1559
2012	0	376	656	359	107	1498
2013	0	409	441	206	109	1165
Total	105	6449	10488	5131	3339	25512

The second drawback is the very uneven distribution of measurements in space and time (see Fig. 1, Table S2). The more or less regular study of plankton in the Sea of Okhotsk began in 1984, in the Sea of Japan in 1985, in the Bering Sea in 1986, and in the Pacific in 1987. Since then, the intensity of plankton research as a whole increased, reaching its peak in 2009, after which it sharply declined, mainly due to the reduced number of surveys in the Sea of Japan and in the ocean. When preparing the above tabular reference books, it was found that ocean area 11 (see Fig. 1) was left practically unstudied, and there were very few samples in the southern half of area 12. In addition, it was found that in areas 1-4 sufficient samples were rarely taken for statistical processing, in autumn only areas 5-7, and in spring only the epipelagic in areas 9, 12 and 13 were fully studied. Another example: in the most studied part of the Sea of Japan, the Peter the Great Bay, very few samples were taken in winter or in the dark, regardless of the season, or in 1991-1995. For this reason, the composition and abundance of plankton in "sardine and pollock fish abundance" – 1988-1990 completely drop out of consideration. Therefore,

for the 49% of the tabular reference books, out of those that was planned for the Bay in accordance with the principles of regionalization and the four data categories (see above), insufficient data was collated. In the Sea of Okhotsk there was insufficient for 24%, in the Bering Sea for 40%, in the Sea of Japan for almost 50%, and in the North-West Pacific Ocean for 60% of the tables (see Dolganova, Volvenko, 2016a, b; Volkov, Volvenko, 2016a-c). So even for waters that were continuously monitored there is no data for many regions on all seasons for long time periods. (For the rest of the waters, there are even less. For example, in the Chukchi Sea only two plankton samples were taken, probably by accident, over 18 years (from 1984 to 2002), and in 2004-2006, 2009, and 2011-2013 none were taken. Therefore, information about the regions, shaded in Fig. 1, was not included in the reference books).

Table S3. Composition of mesofauna found in the surveyed water area (Fig. 1) whose details are in the database

Taxonomic/environmental group	Species number in database	Including water bodies				
		Chukchi Sea	Bering Sea	Sea of Okhotsk	Sea of Japan	Pacific Ocean
Copepods	94	25	47	43	61	75
Gelatinous (jellyfish, comb jellies, pelagic tunicates)	29	4	8	8	17	16
Amphipods	22	4	9	7	8	18
Euphausiids	18	5	9	7	7	17
Mysida	11	1	1	1	11	1
Chaetognaths	8	1	2	2	1	8
Cladocera	8	3	3	3	6	3
Pteropods	6	2	2	2	3	5
Protozoa	4	0	2	2	4	2
Planktonic polychaetes	1	1	1	1	0	1
Cumaceans*	1	1	1	1	1	1
Ostracods*	1	1	1	1	1	1
Isopods*	1	0	0	0	1	0
Meroplankton (larvae of animals)**	10	7	9	7	9	9
In total no less than	214	55	95	85	130	157

Notes: * marks 3 groups which are not identified by species, ** for larvae these are broad groups (e.g. Polychaeta, Gastropoda, Bivalvia, Mysida, Decapoda, Echinodermata) instead of species.

This of course makes it difficult to study the seasonal and long-term dynamics of ecosystems. The regular study at least of the EEZ of the Russian Federation with standard, uniform net measurements is not possible for a few reasons. One of them is relatively[5] objective, and that is the ice conditions in the cold season. The rest relate solely to the lack of funding which forced compromises in quality and quantity of data.

The third drawback is the side effect or the "flip side" of the express method of processing plankton samples, through which a huge amount of data has been collated in the DB. At sea, primary processing occurs daily around the clock immediately before the next sample batch is caught, and when the vessel returns to the port a scientific report is submitted to the TINRO archives office with detailed analyses of all the data collated during the survey. Only common representatives of plankton are identified by species, with others identified only by genus or family, cumaceans and isopods only by group, ostracods by class, and rotifers, for example, are not counted. Due to minor morphological differences between the individual surveys, copepods were not distinguished which in the DB are listed as *Calanus glacialis + marshallae* and *Neocalanus plumchrus + flemingeri*[6]. As a result, according to the tables published by M.S. Kun (1975), who counted 288 species[7] of plankton in the Far Eastern seas

---

[5] "Relatively" because, if necessary, plankton samples can be taken from under the ice even in the Arctic and Antarctic using icebreakers, from the ice surface in natural or artificial ice clearings. This is, however, not as beneficial for TINRO as it is expensive.

[6] There is reason to believe that there are really 2 rather than 4 species (Volkov, 2016), but this hypothesis needs further verification.

[7] This is without two squid species, which we, in contrast to M.S. Kun, refer to not as plankton but as nekton, and not as meso- but as macrofauna.

and the north-western part of the Pacific Ocean, more than 1/4 of them are not included in the DB (see table 2). The underestimation by seas[8] is as follows: the Bering Sea – 9%, the Okhotsk Sea – 30%, the Sea of Japan – 38% of the species. The biggest positive in this respect is the situation in the Bering Sea, but if we take more recent information, there are not 104 (according to Kun, 1975), but 177 (according to Kulikov, 1993) zooplankton species. So the shortfall in this sea is not 9% but 46%. So without too much optimism we can assume that for each body of water we have counted, at best, only 50-70% of the species; only the most common of them. The lack of speciation of very similar species, is found in most plankton datasets due to the amount of time and expertise required to fully sample zooplankton and analyse samples. However, it is known (Volkov, 1996b) that in all the surveyed waters the first 2-3 dominant species of plankton account for more than 50%, and the top 10 no less than 85-90% of the total biomass of zooplankton. With such a low species evenness, the 50 and especially 150 most common species give much more than 99% of this value. Therefore, the shortcomings of the DBs discussed here may be important for taxonomists and fauna scientists studying rare or very scant species, but in most other studies are not of importance.

Fig. S3. Five monographs – tabular reference books on plankton in the Far Eastern seas and the north-western Pacific, prepared based on data in the new net zooplankton database: 1) 'Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013' (Volkov, Volvenko, 2016a) 1153 pages; 2) 'Net Zooplankton of the Okhotsk Sea: Occurrence, Abundance, and Biomass. 1984-2013' (Volkov, Volvenko, 2016b) 1555 pages; 3) 'Net Zooplankton of the Northwestern Pacific: Occurrence, Abundance, and Biomass. 1985-2013' (Volkov, Volvenko, 2016c) 857 pages; 4) 'Net Zooplankton of the Northwestern Part of Japan (East) Sea: Occurrence, Abundance, and Biomass. 1985-2013' (Dolganova, Volvenko, 2016a) 656 pages; 5) 'Net Zooplankton of Peter the Great Bay (Japan/East Sea): Occurrence, Abundance, and Biomass. 1988-2013' (Dolganova, Volvenko, 2016b) 535 pages

After the publication of the tabular reference books (Fig. S3), my colleagues drew my attention to the fact that data collectors used outdated species identification guides, so there were many outdated species names in the tables. When preparing for the publication of the dadaset, I corrected these shortcomings, using information from the WoRMS website for this (Table S4). All of these edits have been reviewed and approved by Volkov and Dolganova.

---

[8] For the ocean M.S. Kun (1975) gives species richness only for the Kuril-Kamchatka region and she provides no data at all on the Chukchi Sea.

Table S4. Replacement of species names in the new data array

Old or wrong scientific name of the species used in the reference books	The new accepted name of the species according to information from WoRMS	Where changes were needed
Corymorpha aurata	*Euphysa aurata*	Jap, PGB
Corymorpha flammea	*Euphysa flammea*	Jap, PGB
Tubularia chistinae	*Hybocodon prolifer*	Jap, PGB
Tubularia prolifer	*Hybocodon prolifer*	Jap, PGB
Siphonophora gen. sp.	Siphonophorae gen. sp.	Jap, PGB
Hydractinia carnea	*Podocoryna carnea*	Jap, PGB
Evadne tergestina	*Pseudevadne tergestina*	Jap, PGB
Podon leuckarti	*Podon leuckartii*	Ber, Okh, Jap, PGB, Pac
Acartia clausi	*Acartia (Acartiura) clausi*	Ber, Okh, Jap, PGB, Pac
Acartia longiremis	*Acartia (Acartiura) longiremis*	Ber, Okh, Jap, PGB, Pac
Acartia pacifica	*Acartia (Odontacartia) pacifica*	Jap, PGB, Pac
Acartia stelleri	*Acartia (Acanthacartia) steueri*	Jap, PGB
Acartia tumida	*Acartia (Acanthacartia) tumida*	Ber, Okh, Jap, PGB, Pac
Aetideus pacificus	*Pseudochirella pacifica*	Ber, Okh, Jap, Pac
Derjuginia tolli	*Jaschnovia tolli*	Jap
Epilabidocera amphitrites	*Epilabidocera longipedata*	Ber, Okh, Jap, PGB, Pac
Eucalanus elongatus	*Eucalanus elongatus elongatus*	Pac
Eucalanus pseuoattenuatus	*Pareucalanus attenuatus*	Pac
Eucalanus subcrassus	*Subeucalanus subcrassus*	Pac
Eucalanus subtenius	*Subeucalanus subtenuis*	Jap, Pac
Euchirella brevis	*Euchirella amoena*	Ber, Pac
Gaidius sp.	*Gaetanus* sp.	Ber, Okh, Pac
Gaidius variabilis	*Gaetanus minutus*	Ber, Okh, Jap, PGB, Pac
Labidocera bipinnata	*Labidocera rotunda*	Jap, PGB
Megacalanus longicornis	*Megacalanus princeps*	Pac
Paracalanus parvus	*Paracalanus parvus parvus*	Okh, Jap, PGB, Pac
Pareuchaeta sp.	*Paraeuchaeta* sp.	Ber, Okh, Pac
Pareuchaeta japonica	*Paraeuchaeta elongata*	Ber, Okh, Jap, PGB, Pac
Pleuromamma abdominalis	*Pleuromamma abdominalis abdominalis*	Pac
Pleurommama xiphias	*Pleuromamma xiphias*	Pac
Pseudochirella polyspina	*Pseudochirella obtusa*	Pac
Scolecithricella ovata	*Pseudoamallothrix ovata*	Ber, Okh, Pac
Sinocalanus tenullus	*Sinocalanus tenellus*	Jap, PGB
Tortanus discaudatus	*Tortanus (Boreotortanus) discaudatus*	Ber, Okh, Jap, PGB, Pac
Undinula darwini	*Cosmocalanus darwinii darwinii*	Pac
Oithona brevicornis	*Oithona brevicornis brevicornis*	Jap, PGB
Oncaea borealis	*Triconia borealis*	Ber, Okh, Jap, PGB, Pac
Oncaea conifera	*Triconia conifera*	Jap, PGB
Acanthomysis borealis	*Exacanthomysis borealis*	Jap, PGB
Acanthomysis dimorphastelleri	*Hemiacanthomysis dimorpha*	Jap, PGB
Disacanthomysis dybovskii	*Disacanthomysis dybowskii*	Jap, PGB
Meterythrops microphtalma	*Meterythrops microphthalmus*	Jap, PGB
Neomysis chernianskii	*Neomysis czerniavskii*	Jap, PGB
Neomysis japonicus	*Neomysis japonica*	Jap, PGB
Paracanthomysis schikotensis	*Paracanthomysis shikhotaniensis*	Jap, PGB
Tessarobrachion oculeatus	*Tessarabrachion oculatum*	Ber, Pac
Thecosomata (Pteropoda) gen. sp.	Tectipleura (Pteropoda) gen. sp.	Jap, PGB
Cavolinia pyramidata	*Clio pyramidata*	Pac
Euclio sp.	*Clio* sp.	Pac
Ferrosagitta ferox	*Ferosagitta ferox*	Pac
Ferrosagitta bipunctata	*Sagitta bipunctata*	Pac
Sagitta elegans	*Parasagitta elegans*	Ber, Okh, Jap, PGB, Pac
Flaccisagitta maxima	*Pseudosagitta maxima*	Okh, Pac
Sagitta nagae	*Zonosagitta nagae*	Pac
Oikopleura vanhoeffeni	*Oikopleura (Vexillaria) vanhoeffeni*	Ber, Okh, Jap, PGB, Pac
Doliolium sp.	*Doliolum* sp.	Okh, Pac
Mysidacea gen. sp.	Mysida gen.sp.	Ber, Okh, Jap, PGB, Pac

Note: WoRMS – World Register of Marine Species http://www.marinespecies.org, Ber – Bering Sea, Jap – The Sea of Japan, Okh – The Sea of Okhotsk, Pac – Pacific Ocean, PGB – Peter the Great Bay.

At the end of this Supplement, let me give a few examples of my first experience in operating zooplankton DB to investigate the geographical patterns of marine life distribution.

Using this DB, the mean annual concentration and total biomass of zooplankton in the epipelagic layer for the Bering, Okhotsk, Japan seas, and the northwestern Pacific Ocean were estimated (Shuntov, Volvenko, 2017). Significant differences are shown for spatial distribution and temporal dynamics of the small-, medium- and large-sized zooplankton abundance and its daily vertical migrations in different areas. Zooplankton stocks in all these regions are evaluated as high; their bulks are formed by large-sized fraction. Interannual fluctuations of the zooplankton abundance could be considerable in certain areas, but its total resource within the Far Eastern basin does not change much: the abundance decline in some areas is compensated by its growth in other ones. A comparison was also made (Volvenko, 2017) of all these large marine areas for various plankton characteristics.

In the next publication (Volvenko, 2019) were compiled and analysed maps of the spatio-temporal distribution of plankton; a hypothesis was made regarding the negative correlation of the plankton size with temperature; and revealed that some fluctuations in the abundance of zooplankton in the Bering Sea and the ocean occur synchronously and unidirectionally, whereas in the Sea of Japan and the Sea of Okhotsk the fluctuations are opposite (out of phase): during the transition from the day to the night in the Okhotsk and Japan seas, the density of plankton throughout the epipelagic zone increases; in the same time in the Bering Sea and the ocean, over large parts of the area, it decreases[9].

Later (Volvenko, 2020) the spatial distribution patterns of 6 integral characteristics of zooplankton are studied at different levels of the spatial scale using GIS and statistical analysis – abundance N, biomass M, diversity H', species richness S, evenness J, and the mean individual body weight of animals W. It is shown that these characteristics are subject to circum-continental zonation, which manifested as an increase in W and a decrease in N, M and J corresponding with the distance from land to the open sea. In the same direction, the variability of all the integral characteristics decrease. Classical manifestations of the latitudinal zonation of zooplankton are observed to an even higher degree: Humboldt-Wallace's law, Bergman's rule, and the increase of biomass from the equator to the poles with decreasing temperature and increasing mineral nutrient concentrations. Several particular additions to Zenkevich-Bogorov's concept of the biological structure of the Ocean were formulated[10].

On the use of the plankton DB primary data one should contact the Directorate of the Pacific Branch of Russian Federal Research Institute of Fisheries and Oceanography (TINRO) E-mail: tinro@tinro-center.ru, contact information on the site: http://www.tinro.vniro.ru/en/contacs; or Direc-torate of the Russian Federal Research Institute of Fisheries and Oceanography (VNIRO) E-mail: vniro@vniro.ru, contact information on the site: http://vniro.ru/en/about-vniro/contacts.

All **Referances** are in the main text of the paper

---

[9] This means that the common practice by trophologists of attempting to replace the day-time catch in plankton nets with the night-time catches to assess the food reserves for fish will yield significantly different results in these waters.
[10] In the supplementary material to this paper are given maps of the spatial distribution of these integral characteristics of net zooplankton in the Far Eastern seas and North Pacific.

Supplement 2 to the data paper 'Data on zooplankton occurrence and abundance in the Far East seas and adjacent Pacific Ocean waters'.

Examples of tables from the tabular reference books

Table 3 from Volkov AF, Volvenko IV (2016a) Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013. TINRO-Center, Vladivostok

The abundance of zooplankton in epipelagial regardless of season and time of day. Averaging data over the entire observation period. Region No. 1 (92 stations)

Species or taxonomic group	Frac-tion	Stage or size group	C.E.	Occurrence samples	%	Number, ind./m^3 Min	Max	Average	Biomass, mg/m^3 Min	Max	Average
Acartia longiremis	S	-	1.50	16	17.39	0.250	1042.500	17.816 ± 11.564	0.013	52.125	0.873 ± 0.576
Acartia longiremis	M	-	2.00	14	15.22	0.851	24.691	1.040 ± 0.363	0.138	4.000	0.168 ± 0.059
Acartia tumida	M	-	2.00	9	9.78	0.488	218.667	6.061 ± 3.177	0.073	32.800	0.909 ± 0.477
Aglantha digitale	M	-	1.00	6	6.52	0.100	13.333	0.254 ± 0.154	0.132	17.560	0.335 ± 0.203
Aglantha digitale	L	-	1.00	22	23.91	0.013	1.864	0.097 ± 0.031	1.950	279.600	14.688 ± 4.615
Balanus sp.	S	cypris	1.00	8	8.70	2.000	6200.000	116.587 ± 75.869	0.100	310.000	5.829 ± 3.793
Balanus sp.	S	nauplius	1.00	36	39.13	12.500	33750.000	1093.787 ± 449.601	0.200	540.000	16.961 ± 7.159
Balanus sp.	M	cypris	1.00	20	21.74	1.333	194.333	6.524 ± 2.798	0.303	44.114	1.481 ± 0.635
Balanus sp.	M	nauplius	1.00	18	19.57	0.500	4640.351	163.907 ± 75.432	0.057	529.000	18.685 ± 8.599
Beroe cucumis	L	-	1.00	4	4.35	0.179	45.644	0.529 ± 0.499	32.932	8397.400	97.379 ± 91.865
Bivalvia *gen. sp.*	S	larvae	1.00	29	31.52	1.000	5250.000	319.483 ± 93.018	0.008	42.000	2.556 ± 0.744
Brachyura+Lithodidae *gen. sp.*	L	larvae	2.00	13	14.13	0.026	9.233	0.300 ± 0.129	0.200	71.768	2.330 ± 1.005
Bradyidius pacificus	L	-	2.00	2	2.17	0.318	0.846	0.013 ± 0.010	0.350	0.930	0.014 ± 0.011
Calanus glacialis+marshallae	M	-	2.00	37	40.22	0.851	138.182	10.008 ± 2.445	0.386	62.596	4.534 ± 1.108
Calanus glacialis+marshallae	L	-	2.00	72	78.26	1.324	240.453	24.342 ± 4.836	3.100	622.300	64.185 ± 12.875
Caridea gen. sp.	L	larvae	2.00	6	6.52	0.100	3.281	0.062 ± 0.039	0.302	9.918	0.188 ± 0.116
Centropages abdominalis	S	-	1.50	35	38.04	0.167	1125.000	65.246 ± 18.802	0.010	57.700	3.371 ± 0.999
Centropages abdominalis	M	-	2.00	48	52.17	1.500	977.500	95.975 ± 23.591	0.225	146.625	14.396 ± 3.539
Clione limacina	S	-	1.00	5	5.43	1.667	50.847	1.411 ± 0.770	0.067	2.034	0.056 ± 0.031
Clione limacina	M	-	2.00	6	6.52	0.444	2.889	0.086 ± 0.040	0.400	2.600	0.076 ± 0.036
Clione limacina	L	-	2.00	12	13.04	0.017	0.238	0.017 ± 0.005	0.850	11.900	0.833 ± 0.270
Copepoda gen. sp.	S	nauplius	1.00	64	69.57	0.667	2291.667	288.179 ± 46.867	0.010	30.000	3.942 ± 0.650
Copepoda gen. sp.	S	ova	1.00	12	13.04	2.500	187.500	14.057 ± 4.388	0.010	0.750	0.056 ± 0.018
Cumacea gen. sp.	M	-	1.00	1	1.09	2.800	2.800	0.030 ± 0.031	1.400	1.400	0.015 ± 0.015
Cumacea gen. sp.	L	-	2.00	4	4.35	5.846	13.121	0.388 ± 0.203	108.459	243.455	7.195 ± 3.772
Echinodermata gen. sp.	S	larvae	1.00	4	4.35	16.667	76.271	1.825 ± 1.037	0.133	0.610	0.015 ± 0.008
Eucalanus bungii	S	-	1.50	3	3.26	104.651	272.727	5.461 ± 3.444	9.105	23.727	0.475 ± 0.300
Eucalanus bungii	M	-	2.00	38	41.30	0.588	1200.000	26.098 ± 13.652	1.176	2400.000	52.195 ± 27.304
Eucalanus bungii	L	-	2.00	79	85.87	0.171	236.493	26.653 ± 4.228	1.200	1797.351	195.911 ± 31.555
Euphausia gen. sp.	L	furcilia	2.00	31	33.70	0.465	45.793	3.739 ± 0.877	1.395	137.379	11.067 ± 2.620
Euphausiacea gen. sp.	S	calyptopis	1.00	1	1.09	88.750	88.750	0.965 ± 0.970	7.100	7.100	0.077 ± 0.078
Euphausiacea gen. sp.	S	nauplius	1.00	2	2.17	22.727	46.875	0.757 ± 0.567	1.023	2.109	0.034 ± 0.026
Euphausiacea gen. sp.	S	ova	1.00	1	1.09	525.000	525.000	5.707 ± 5.738	15.750	15.750	0.171 ± 0.172
Euphausiacea gen. sp.	M	calyptopis	2.00	17	18.48	0.476	37.037	1.841 ± 0.575	0.197	15.296	0.760 ± 0.237
Euphausiacea gen. sp.	M	furcilia	2.00	5	5.43	0.500	26.750	0.429 ± 0.301	0.900	48.150	0.772 ± 0.542
Euphausiacea gen. sp.	M	juvenis	2.00	3	3.26	1.026	111.111	2.042 ± 1.462	1.846	200.000	3.676 ± 2.632

Species	Size	Stage		Count	%			Mean ± SD			Mean ± SD
Eurytemora herdmani	M	-	2.00	1	1.09	1.700	1.700	0.018 ± 0.019	0.097	0.097	0.001 ± 0.001
Evadne sp.	S	-	1.00	1	1.09	30.000	30.000	0.326 ± 0.328	0.900	0.900	0.010 ± 0.010
Fritillaria sp.	S	-	1.00	13	14.13	20.000	415.385	20.998 ± 7.604	0.392	7.062	0.381 ± 0.136
Gammaridae gen. sp.	M	-	1.50	2	2.17	1.333	2.800	0.045 ± 0.034	0.761	1.400	0.023 ± 0.017
Gammaridae gen. sp.	L	-	2.00	9	9.78	0.035	4.782	0.144 ± 0.072	0.350	47.820	1.444 ± 0.717
Globigerina sp.	S	-	1.00	1	1.09	107.143	107.143	1.165 ± 1.171	0.857	0.857	0.009 ± 0.009
Limacina helicina	S	-	1.00	13	14.13	0.667	226.667	9.106 ± 3.352	0.010	3.400	0.137 ± 0.050
Limacina helicina	M	-	1.00	14	15.22	0.167	13.559	0.547 ± 0.204	0.080	6.468	0.261 ± 0.097
Limacina helicina	L	-	1.00	12	13.04	0.160	4.302	0.192 ± 0.072	0.595	16.000	0.714 ± 0.268
Metridia pacifica	M	-	2.00	55	59.78	0.920	1479.290	67.995 ± 20.308	0.622	1000.000	45.923 ± 13.730
Metridia pacifica	L	-	2.00	44	47.83	0.111	35.556	4.135 ± 0.785	0.100	32.000	3.675 ± 0.704
Metridia sp.	S	copepodit	1.50	27	29.35	27.500	1175.000	69.650 ± 18.500	1.100	47.000	2.749 ± 0.736
Metridia sp.	M	copepodit	2.00	36	39.13	3.404	972.973	67.249 ± 17.713	1.021	291.892	20.175 ± 5.314
Microcalanus pygmaeus	S	-	1.50	26	28.26	20.270	340.000	30.268 ± 7.262	0.284	4.760	0.424 ± 0.102
Microsetella sp.	S	-	1.50	21	22.83	0.588	1541.176	30.049 ± 17.046	0.010	26.200	0.553 ± 0.292
Mysida gen.sp.	M	larvae	1.00	2	2.17	0.480	6.471	0.076 ± 0.071	0.082	1.100	0.013 ± 0.012
Mysida gen.sp.	L	-	2.00	5	5.43	0.433	28.698	0.341 ± 0.314	26.000	1721.900	20.446 ± 18.822
Mysida gen.sp.	L	<10 mm	2.00	4	4.35	0.317	1.026	0.028 ± 0.015	0.606	2.373	0.063 ± 0.034
Neocalanus cristatus	L	-	2.00	48	52.17	0.290	37.500	2.685 ± 0.595	2.900	300.000	23.837 ± 4.947
Neocalanus plumchrus+flemingeri	M	-	2.00	9	9.78	2.791	285.714	5.049 ± 3.266	1.086	100.000	1.768 ± 1.143
Neocalanus plumchrus+flemingeri	L	-	2.00	82	89.13	0.600	294.400	29.250 ± 4.968	1.500	736.000	75.649 ± 12.648
Neocalanus sp.	S	copepodit	1.50	13	14.13	42.857	3243.243	71.035 ± 44.027	1.586	120.000	2.628 ± 1.629
Neocalanus sp.	M	copepodit	2.00	8	8.70	1.333	34.884	0.984 ± 0.507	0.468	12.244	0.345 ± 0.178
Oikopleura vanhoeffeni	S	-	1.00	14	15.22	4.348	735.294	26.445 ± 10.799	0.148	25.000	0.899 ± 0.367
Oikopleura vanhoeffeni	M	-	1.00	49	53.26	0.476	677.778	36.089 ± 11.239	0.041	61.000	3.231 ± 1.011
Oikopleura vanhoeffeni	L	-	2.00	44	47.83	0.168	99.400	5.777 ± 1.610	0.336	198.800	11.555 ± 3.220
Oithona similis	S	-	1.50	67	72.83	14.286	21428.572	1531.171 ± 322.351	0.200	300.000	21.802 ± 4.521
Ostracoda gen. sp.	M	-	1.00	7	7.61	0.455	4.706	0.169 ± 0.076	0.190	1.962	0.071 ± 0.032
Paguridae gen. sp.	L	larvae	2.00	5	5.43	0.143	1.083	0.031 ± 0.017	0.502	3.800	0.109 ± 0.058
Paraeuchaeta elongata	L	-	2.00	3	3.26	0.875	1.072	0.031 ± 0.018	3.673	4.502	0.129 ± 0.074
Parasagitta elegans	M	-	2.00	19	20.65	0.455	52.000	2.320 ± 0.875	0.091	10.400	0.462 ± 0.175
Parasagitta elegans	L	-	10.0	47	51.09	0.173	149.167	9.971 ± 2.349	3.800	3126.235	215.837 ± 50.394
Parasagitta elegans	L	<10 mm	2.00	11	11.96	0.563	10.606	0.384 ± 0.156	0.450	7.424	0.293 ± 0.113
Parasagitta elegans	L	10-20 mm	5.00	41	44.57	0.893	134.167	11.107 ± 2.571	4.651	698.742	59.545 ± 13.690
Parasagitta elegans	L	20-25 mm	10.0	23	25.00	1.587	121.667	3.820 ± 1.534	27.119	1825.800	61.673 ± 23.854
Parasagitta elegans	L	25-30 mm	10.0	10	10.87	1.333	8.696	0.345 ± 0.130	37.120	260.652	10.858 ± 4.040
Parasagitta elegans	L	>30 mm	10.0	4	4.35	1.852	3.333	0.111 ± 0.057	87.389	181.939	5.680 ± 2.942
Polychaeta gen. sp.	S	larvae	1.00	38	41.30	6.667	8375.000	878.127 ± 193.489	0.187	234.500	24.548 ± 5.418
Polychaeta gen. sp.	M	larvae	1.00	15	16.30	1.127	228.475	6.375 ± 3.212	1.005	203.800	5.686 ± 2.865
Polychaeta gen. sp.	L	larvae	2.00	5	5.43	0.060	5.067	0.069 ± 0.056	0.090	7.600	0.103 ± 0.084
Primno macropa	M	-	1.50	1	1.09	1.500	1.500	0.016 ± 0.016	1.500	1.500	0.016 ± 0.016
Primno macropa	L	-	3.00	1	1.09	0.765	0.765	0.008 ± 0.008	13.000	13.000	0.141 ± 0.142
Pseudocalanus minutus	M	-	2.00	84	91.30	18.133	3711.667	407.100 ± 67.928	2.285	445.400	49.094 ± 8.144
Pseudocalanus newmani	S	-	1.50	14	15.22	102.273	1880.000	99.603 ± 34.758	4.091	75.200	3.984 ± 1.390

Species	Fraction	Stage or size group	C.E.	n	%		max	mean ± SE		max	mean ± SE
Pseudocalanus sp.	S	-	1.50	72	78.26	27.778	10500.000	830.337 ± 158.724	1.111	420.000	33.213 ± 6.349
Pseudocalanus sp.	M	-	2.00	15	16.30	27.179	565.833	26.255 ± 8.514	2.446	50.925	2.363 ± 0.766
Racovitzanus antarcticus	M	-	2.00	1	1.09	1.127	1.127	0.012 ± 0.012	0.316	0.316	0.003 ± 0.003
Scolecithricella minor	S	-	1.50	4	4.35	0.667	12.500	0.169 ± 0.138	0.049	1.000	0.013 ± 0.011
Scolecithricella minor	M	-	2.00	10	10.87	0.851	10.000	0.401 ± 0.149	0.162	1.600	0.073 ± 0.026
Themisto libellula	L	-	5.00	7	7.61	0.048	16.000	0.309 ± 0.193	3.600	1200.000	23.161 ± 14.494
Themisto libellula	L	5-10 mm	3.00	11	11.96	0.455	1.837	0.103 ± 0.033	6.370	25.718	1.436 ± 0.468
Themisto libellula	L	10-20 mm	5.00	11	11.96	0.758	22.500	0.521 ± 0.266	77.316	2064.533	50.356 ± 24.774
Themisto pacifica	S	-	1.00	1	1.09	5.000	5.000	0.054 ± 0.055	0.690	0.690	0.007 ± 0.008
Themisto pacifica	M	-	2.00	6	6.52	2.667	12.424	0.432 ± 0.201	1.760	8.200	0.285 ± 0.133
Themisto pacifica	L	-	3.00	11	11.96	0.046	4.154	0.096 ± 0.050	0.600	54.000	1.237 ± 0.650
Themisto pacifica	L	<5 mm	2.00	10	10.87	0.234	1.533	0.057 ± 0.022	0.352	2.300	0.094 ± 0.035
Themisto pacifica	L	5-7 mm	3.00	3	3.26	0.441	0.769	0.018 ± 0.011	2.500	4.538	0.106 ± 0.063
Themisto pacifica	L	7-10 mm	3.00	2	2.17	0.289	2.167	0.027 ± 0.024	4.340	32.500	0.400 ± 0.358
Thysanoessa inermis	L	-	10.0	11	11.96	0.102	4.838	0.221 ± 0.087	6.600	314.500	13.452 ± 5.376
Thysanoessa inermis	L	<10 mm	3.00	1	1.09	0.700	0.700	0.008 ± 0.008	2.100	2.100	0.023 ± 0.023
Thysanoessa inermis	L	10-20 mm	5.00	3	3.26	2.326	3.676	0.092 ± 0.054	65.116	102.941	2.588 ± 1.520
Thysanoessa inermis	L	20-25 mm	10.0	1	1.09	1.667	1.667	0.018 ± 0.018	133.360	133.360	1.450 ± 1.458
Thysanoessa longipes	L	-	5.00	3	3.26	0.015	0.588	0.007 ± 0.006	1.300	47.564	0.603 ± 0.524
Thysanoessa longipes	L	<10 mm	3.00	4	4.35	0.313	1.150	0.028 ± 0.015	1.406	4.600	0.114 ± 0.062
Thysanoessa raschii	L	-	10.0	19	20.65	0.053	34.286	1.427 ± 0.577	3.700	2400.000	103.161 ± 41.090
Thysanoessa raschii	L	<10 mm	3.00	16	17.39	0.313	36.786	1.372 ± 0.544	1.153	135.556	5.069 ± 1.990
Thysanoessa raschii	L	10-20 mm	5.00	1	1.09	0.833	0.833	0.009 ± 0.009	20.825	20.825	0.226 ± 0.228
Triconia borealis	S	-	1.50	36	39.13	2.000	570.423	48.358 ± 10.401	0.066	18.824	1.562 ± 0.336
Amphipods								1.831 ± 0.403			78.707 ± 28.725
Copepods								3902.751 ± 376.840			630.994 ± 49.587
Cladocerans								0.326 ± 0.328			0.010 ± 0.010
Gelatinous (jellyfish. comb jellies. pelagic tunicates)								90.190 ± 17.425			128.467 ± 92.044
Pteropods								11.358 ± 3.447			2.076 ± 0.398
Cumaceans								0.418 ± 0.206			7.211 ± 3.772
Meroplankton (larvae of benthic animals)								2587.077 ± 509.604			78.492 ± 13.384
Mysids								0.444 ± 0.322			20.521 ± 18.822
Protists								1.165 ± 1.171			0.009 ± 0.009
Ostracods								0.169 ± 0.076			0.071 ± 0.032
Chaetognaths								28.059 ± 3.910			354.348 ± 57.628
Euphausiids								18.663 ± 6.177			143.245 ± 41.715
Entire zooplankton								6642.451 ± 634.094			1444.150 ± 131.776

Note. Here and in following tables: C.E. - catch efficiency correction coefficient; Fraction "S" - small (fine). "M" - mean. "L" - large (coarse); Stage or size group "-" – not subdivided; the value 0.000 means <0.0005. Numbers for the regions as in Fig. 5.

Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013
Volkov AF
Volvenko IV
2016
TINRO-Center, Vladivostok

Table 4 from Volkov AF. Volvenko IV (2016a) Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013. TINRO-Center, Vladivostok

The abundance of zooplankton in epipelagial regardless of season and time of day. Averaging data over the entire observation period. Region No. 2 (268 stations)

Species or taxonomic group	Frac-tion	Stage or size group	C.E.	Occurrence samples	Occurrence %	Number. ind./m³ Min	Number. ind./m³ Max	Number. ind./m³ Average	Biomass. mg/m³ Min	Biomass. mg/m³ Max	Biomass. mg/m³ Average
Acartia longiremis	S	-	1.50	66	24.63	1.800	1600.000	16.307 ± 6.197	0.090	80.000	0.805 ± 0.310
Acartia longiremis	M	-	2.00	35	13.06	0.556	607.407	3.598 ± 2.310	0.090	98.400	0.583 ± 0.374
Acartia tumida	S	-	1.50	2	0.75	65.000	290.000	1.325 ± 1.110	6.500	29.000	0.132 ± 0.111
Acartia tumida	M	-	2.00	16	5.97	0.952	14619.999	65.977 ± 54.855	0.143	2193.000	9.897 ± 8.228
Aglantha digitale	M	-	1.00	13	4.85	0.060	12.301	0.188 ± 0.075	0.079	16.200	0.248 ± 0.099
Aglantha digitale	L	-	1.00	91	33.96	0.001	5.875	0.166 ± 0.039	0.150	881.250	24.926 ± 5.919
Balanus sp.	S	cypris	1.00	8	2.99	34.091	3474.000	39.299 ± 17.073	1.636	173.700	1.965 ± 0.854
Balanus sp.	S	nauplius	1.00	104	38.81	1.800	51406.250	628.756 ± 237.846	0.025	822.500	9.823 ± 3.798
Balanus sp.	M	cypris	1.00	43	16.04	0.333	563.158	10.990 ± 3.388	0.076	127.837	2.495 ± 0.769
Balanus sp.	M	nauplius	1.00	62	23.13	0.167	4657.895	53.133 ± 23.069	0.019	531.000	6.057 ± 2.630
Beroe cucumis	L	-	1.00	9	3.36	0.064	4.818	0.039 ± 0.023	11.774	886.396	7.192 ± 4.218
Bivalvia gen. sp.	S	larvae	1.00	125	46.64	1.000	7499.999	256.113 ± 49.598	0.008	60.000	2.049 ± 0.397
Brachyura+Lithodidae gen. sp.	L	larvae	2.00	87	32.46	0.027	90.600	2.291 ± 0.570	0.210	704.234	17.814 ± 4.431
Bradyidius pacificus	S	-	1.50	3	1.12	8.889	64.444	0.330 ± 0.249	0.800	5.800	0.030 ± 0.022
Bradyidius pacificus	M	-	2.00	7	2.61	1.000	5.600	0.063 ± 0.028	0.494	2.800	0.031 ± 0.014
Bradyidius pacificus	L	-	2.00	1	0.37	0.264	0.264	0.001 ± 0.001	0.361	0.361	0.001 ± 0.001
Calanus glacialis+marshallae	M	-	2.00	100	37.31	0.357	52.632	3.741 ± 0.499	0.162	23.842	1.697 ± 0.226
Calanus glacialis+marshallae	L	-	2.00	200	74.63	0.105	250.208	10.217 ± 1.414	0.286	582.985	26.186 ± 3.536
Candacia columbiae	L	-	2.00	1	0.37	0.277	0.277	0.001 ± 0.001	0.858	0.858	0.003 ± 0.003
Caridea gen. sp.	L	larvae	2.00	27	10.07	0.100	7.019	0.196 ± 0.048	0.302	21.218	0.580 ± 0.142
Centropages abdominalis	S	-	1.50	116	43.28	0.167	7928.570	152.009 ± 42.929	0.010	396.429	7.742 ± 2.152
Centropages abdominalis	M	-	2.00	133	49.63	0.067	4452.000	104.279 ± 24.376	0.010	667.800	15.642 ± 3.656
Clione limacina	S	-	1.00	9	3.36	1.667	61.224	0.851 ± 0.337	0.067	2.449	0.034 ± 0.013
Clione limacina	M	-	2.00	6	2.24	0.071	7.444	0.051 ± 0.031	0.061	6.700	0.046 ± 0.027
Clione limacina	L	-	2.00	35	13.06	0.000	0.517	0.022 ± 0.005	0.010	25.862	1.071 ± 0.228
Copepoda gen. sp.	S	nauplius	1.00	212	79.10	6.300	5384.615	456.044 ± 43.776	0.082	70.000	6.234 ± 0.589
Copepoda gen. sp.	S	ova	1.00	22	8.21	30.000	7500.000	39.860 ± 28.160	0.120	30.000	0.159 ± 0.113
Cumacea gen. sp.	M	-	1.00	4	1.49	1.000	13.151	0.079 ± 0.053	0.585	7.693	0.046 ± 0.031
Cumacea gen. sp.	L	-	2.00	9	3.36	0.050	82.713	1.061 ± 0.475	0.928	1534.657	19.686 ± 8.817
Decapoda gen. sp.	M	larvae	2.00	3	1.12	0.526	2.500	0.015 ± 0.010	0.211	1.000	0.006 ± 0.004
Dimophyes arctica	L	-	1.00	4	1.49	0.078	0.500	0.004 ± 0.002	0.700	4.500	0.038 ± 0.021
Echinodermata gen. sp.	S	larvae	1.00	18	6.72	7.000	7640.000	50.233 ± 30.542	0.056	61.120	0.402 ± 0.244
Epilabidocera amphitrites	L	-	2.00	1	0.37	0.050	0.050	0.000 ± 0.000	0.100	0.100	0.000 ± 0.000
Eucalanus bungii	S	-	1.50	16	5.97	17.143	278.571	5.958 ± 1.881	1.200	19.500	0.449 ± 0.138
Eucalanus bungii	M	-	2.00	130	48.51	0.005	495.000	14.438 ± 2.872	0.010	990.000	28.875 ± 5.744
Eucalanus bungii	L	-	2.00	218	81.34	0.043	422.586	21.986 ± 3.179	0.300	2958.100	157.495 ± 22.553
Euphausia gen. sp.	L	furcilia	2.00	47	17.54	0.056	45.800	1.817 ± 0.381	0.168	137.400	5.339 ± 1.118
Euphausia pacifica	L	-	10.0	1	0.37	0.129	0.129	0.000 ± 0.000	4.500	4.500	0.017 ± 0.017

Taxon	Size	Stage									
Euphausiacea gen. sp.	S	calyptopis	1.00	7	2.61	14.375	1406.250	10.688 ± 5.951	1.150	112.500	0.855 ± 0.476
Euphausiacea gen. sp.	S	nauplius	1.00	24	8.96	1.250	512.500	12.307 ± 3.786	0.050	22.112	0.516 ± 0.158
Euphausiacea gen. sp.	S	ova	1.00	13	4.85	2.667	226.667	3.592 ± 1.354	0.080	6.800	0.108 ± 0.041
Euphausiacea gen. sp.	M	calyptopis	2.00	58	21.64	0.020	213.333	5.673 ± 1.586	0.008	88.107	2.343 ± 0.655
Euphausiacea gen. sp.	M	furcilia	2.00	12	4.48	0.250	385.722	1.651 ± 1.444	0.450	694.300	2.971 ± 2.600
Euphausiacea gen. sp.	M	juvenis	2.00	8	2.99	1.765	78.431	0.803 ± 0.379	3.176	141.176	1.445 ± 0.682
Eurytemora herdmani	S	-	1.50	10	3.73	5.667	234.333	1.570 ± 0.917	0.136	5.624	0.038 ± 0.022
Eurytemora herdmani	M	-	2.00	10	3.73	0.400	21.000	0.151 ± 0.083	0.023	1.197	0.009 ± 0.005
Fritillaria sp.	S	-	1.00	67	25.00	0.769	7138.462	143.710 ± 37.325	0.013	121.354	2.513 ± 0.638
Fritillaria sp.	M	-	1.00	1	0.37	25.000	25.000	0.093 ± 0.093	1.500	1.500	0.006 ± 0.006
Gaetanus sp.	L	-	2.00	1	0.37	0.460	0.460	0.002 ± 0.002	0.967	0.967	0.004 ± 0.004
Gammaridae gen. sp.	M	-	1.50	1	0.37	0.800	0.800	0.003 ± 0.003	0.400	0.400	0.001 ± 0.001
Gammaridae gen. sp.	L	-	2.00	67	25.00	0.024	93.900	4.231 ± 0.830	0.240	939.000	42.311 ± 8.304
Gastropoda gen. sp.	S	larvae	1.00	3	1.12	0.500	65.000	0.282 ± 0.246	0.018	2.275	0.010 ± 0.009
Globigerina sp.	S	-	1.00	1	0.37	25.862	25.862	0.097 ± 0.097	0.207	0.207	0.001 ± 0.001
Hyperia galba	L	-	3.00	2	0.75	0.417	0.833	0.005 ± 0.003	10.302	20.578	0.115 ± 0.086
Limacina helicina	S	-	1.00	43	16.04	13.333	2000.000	24.723 ± 8.924	0.200	30.000	0.371 ± 0.134
Limacina helicina	M	-	1.00	31	11.57	0.056	36.364	0.737 ± 0.233	0.027	17.346	0.352 ± 0.111
Limacina helicina	L	-	1.00	34	12.69	0.040	3.012	0.072 ± 0.018	0.149	11.200	0.270 ± 0.067
Metridia pacifica	M	-	2.00	157	58.58	0.149	1463.908	37.669 ± 8.070	0.101	989.602	25.444 ± 5.456
Metridia pacifica	L	-	2.00	121	45.15	0.222	503.333	7.917 ± 2.261	0.200	453.000	7.107 ± 2.035
Metridia sp.	S	copepodit	1.50	89	33.21	15.000	1405.000	66.433 ± 10.581	0.600	56.200	2.636 ± 0.421
Metridia sp.	M	copepodit	2.00	69	25.75	0.333	1063.385	21.348 ± 5.369	0.100	319.016	6.404 ± 1.611
Microcalanus pygmaeus	S	-	1.50	80	29.85	1.000	620.000	30.459 ± 4.633	0.014	8.680	0.427 ± 0.065
Microsetella sp.	S	-	1.50	54	20.15	0.588	294.118	13.351 ± 2.494	0.010	5.000	0.249 ± 0.044
Mysida gen.sp.	M	larvae	1.00	3	1.12	0.300	104.706	0.403 ± 0.392	0.051	17.800	0.069 ± 0.067
Mysida gen.sp.	L	-	2.00	25	9.33	0.050	86.800	0.849 ± 0.446	3.000	5177.533	50.704 ± 26.632
Mysida gen.sp.	L	<10 mm	2.00	16	5.97	0.244	5.294	0.075 ± 0.030	0.564	12.251	0.177 ± 0.070
Mysida gen.sp.	L	10-20 mm	2.00	10	3.73	0.610	82.000	0.789 ± 0.437	11.675	1570.054	15.086 ± 8.363
Mysida gen.sp.	L	20-25 mm	2.00	3	1.12	2.041	52.000	0.222 ± 0.195	196.656	4260.000	18.555 ± 16.048
Mysida gen.sp.	L	>25 mm	2.00	1	0.37	5.882	5.882	0.022 ± 0.022	716.694	716.694	2.674 ± 2.679
Neocalanus cristatus	L	-	2.00	110	41.04	0.150	52.725	2.213 ± 0.354	1.500	421.800	19.641 ± 2.982
Neocalanus plumchrus+flemingeri	M	-	2.00	20	7.46	0.857	269.714	2.917 ± 1.192	0.300	94.400	1.027 ± 0.418
Neocalanus plumchrus+flemingeri	L	-	2.00	201	75.00	0.160	330.000	19.003 ± 2.263	0.400	825.000	48.800 ± 5.707
Neocalanus sp.	S	copepodit	1.50	24	8.96	9.868	187.500	5.785 ± 1.474	0.365	6.937	0.214 ± 0.055
Neocalanus sp.	M	copepodit	2.00	31	11.57	0.417	61.370	0.650 ± 0.256	0.146	21.541	0.228 ± 0.090
Oikopleura vanhoeffeni	S	-	1.00	42	15.67	6.522	802.941	27.371 ± 6.374	0.222	27.300	0.931 ± 0.217
Oikopleura vanhoeffeni	M	-	1.00	73	27.24	0.294	786.667	28.235 ± 5.824	0.026	70.800	2.494 ± 0.516
Oikopleura vanhoeffeni	L	-	2.00	94	35.07	0.122	165.200	2.973 ± 0.728	0.244	330.400	5.946 ± 1.457
Oithona similis	S	-	1.50	226	84.33	18.000	16457.143	1231.854 ± 140.663	0.260	230.400	17.549 ± 1.975
Ostracoda gen. sp.	M	-	1.00	11	4.10	0.250	12.414	0.112 ± 0.054	0.104	5.177	0.047 ± 0.023
Ostracoda gen. sp.	L	-	1.00	5	1.87	0.050	0.227	0.003 ± 0.001	0.074	0.334	0.004 ± 0.002
Paguridae gen. sp.	L	larvae	2.00	13	4.85	0.043	21.994	0.155 ± 0.089	0.151	77.200	0.544 ± 0.313
Paraeuchaeta elongata	L	-	2.00	7	2.61	0.244	1.468	0.014 ± 0.006	1.024	6.166	0.059 ± 0.027

Species										
Parasagitta elegans	S	-	1.00	6	2.24	26.286	195.714	1.671 ± 0.864	1.840	13.700	0.117 ± 0.060
Parasagitta elegans	M	-	2.00	93	34.70	0.103	130.286	5.091 ± 0.844	0.019	26.057	0.985 ± 0.164
Parasagitta elegans	L	-	10.0	113	42.16	0.018	150.909	8.604 ± 1.371	0.400	3320.000	186.460 ± 29.794
Parasagitta elegans	L	<10 mm	2.00	56	20.90	0.150	30.000	0.875 ± 0.200	0.120	24.000	0.717 ± 0.165
Parasagitta elegans	L	10-20 mm	5.00	140	52.24	0.340	160.294	7.797 ± 0.991	1.771	834.811	40.463 ± 5.144
Parasagitta elegans	L	20-25 mm	10.0	100	37.31	1.030	444.000	6.721 ± 1.843	17.439	7587.072	113.497 ± 31.207
Parasagitta elegans	L	25-30 mm	10.0	33	12.31	1.220	66.667	1.123 ± 0.341	35.976	2299.211	36.836 ± 11.272
Parasagitta elegans	L	>30 mm	10.0	7	2.61	1.220	4.082	0.066 ± 0.026	57.951	187.755	3.353 ± 1.324
Podon leuckartii	S	-	1.00	5	1.87	38.889	683.333	4.830 ± 2.905	1.050	18.450	0.130 ± 0.078
Podon sp.	S	-	1.00	8	2.99	1.311	21.889	0.176 ± 0.092	0.035	0.591	0.005 ± 0.002
Polychaeta gen. sp.	S	larvae	1.00	125	46.64	0.144	13985.294	523.621 ± 89.347	0.004	391.588	14.497 ± 2.455
Polychaeta gen. sp.	M	larvae	1.00	74	27.61	0.333	212.332	7.366 ± 1.519	0.297	189.400	6.571 ± 1.355
Polychaeta gen. sp.	L	larvae	2.00	7	2.61	0.024	3.333	0.020 ± 0.013	0.036	5.000	0.030 ± 0.019
Primno macropa	L	-	3.00	1	0.37	0.459	0.459	0.002 ± 0.002	7.800	7.800	0.029 ± 0.029
Primno macropa	L	<5 mm	2.00	2	0.75	0.200	0.314	0.002 ± 0.001	0.464	0.728	0.004 ± 0.003
Primno macropa	L	5-7 mm	3.00	1	0.37	0.733	0.733	0.003 ± 0.003	4.946	4.946	0.018 ± 0.018
Primno macropa	L	7-10 mm	3.00	1	0.37	0.130	0.130	0.000 ± 0.000	2.571	2.571	0.010 ± 0.010
Pseudocalanus minutus	M	-	2.00	195	72.76	0.833	3000.000	225.227 ± 30.500	0.100	360.000	27.334 ± 3.676
Pseudocalanus newmani	S	-	1.50	101	37.69	4.500	3066.667	138.939 ± 18.409	0.180	122.667	5.558 ± 0.736
Pseudocalanus sp.	S	-	1.50	139	51.87	0.091	6000.000	454.385 ± 59.987	0.004	240.000	18.175 ± 2.399
Pseudocalanus sp.	M	-	2.00	96	35.82	1.212	1238.333	63.517 ± 9.963	0.109	111.450	5.717 ± 0.897
Racovitzanus antarcticus	M	-	2.00	4	1.49	0.488	1.429	0.014 ± 0.008	0.137	0.400	0.004 ± 0.002
Scolecithricella minor	S	-	1.50	1	0.37	4.375	4.375	0.016 ± 0.016	0.350	0.350	0.001 ± 0.001
Scolecithricella minor	M	-	2.00	31	11.57	0.250	22.340	0.449 ± 0.115	0.047	3.574	0.076 ± 0.019
Themisto libellula	L	-	5.00	16	5.97	0.303	2.760	0.059 ± 0.017	22.580	207.000	4.386 ± 1.289
Themisto libellula	L	5-10 mm	3.00	16	5.97	0.303	2.381	0.044 ± 0.013	4.242	33.334	0.609 ± 0.182
Themisto libellula	L	10-20 mm	5.00	39	14.55	0.610	50.000	0.928 ± 0.266	62.195	5100.000	94.370 ± 27.080
Themisto libellula	L	20-30 mm	5.00	7	2.61	0.265	4.991	0.030 ± 0.019	79.500	1497.300	8.886 ± 5.780
Themisto pacifica	M	-	2.00	16	5.97	0.556	8.767	0.217 ± 0.066	0.367	5.786	0.143 ± 0.043
Themisto pacifica	L	-	3.00	48	17.91	0.046	40.923	0.328 ± 0.165	0.600	532.000	4.230 ± 2.148
Themisto pacifica	L	<5 mm	2.00	19	7.09	0.093	1.739	0.034 ± 0.010	0.140	2.976	0.055 ± 0.016
Themisto pacifica	L	5-7 mm	3.00	9	3.36	0.341	1.875	0.027 ± 0.011	1.548	10.793	0.157 ± 0.064
Themisto pacifica	L	7-10 mm	3.00	14	5.22	0.193	1.893	0.034 ± 0.011	2.900	28.400	0.497 ± 0.164
Thysanoessa inermis	L	-	10.0	28	10.45	0.006	20.000	0.249 ± 0.098	0.330	1100.000	14.126 ± 5.435
Thysanoessa inermis	L	<10 mm	3.00	28	10.45	0.033	92.967	2.242 ± 0.669	0.100	278.900	6.727 ± 2.007
Thysanoessa inermis	L	10-20 mm	5.00	28	10.45	0.151	20.000	0.307 ± 0.109	4.228	560.000	8.609 ± 3.051
Thysanoessa inermis	L	20-25 mm	10.0	6	2.24	1.250	4.054	0.055 ± 0.024	101.563	292.703	4.157 ± 1.851
Thysanoessa longipes	L	-	5.00	7	2.61	0.001	0.995	0.009 ± 0.005	0.081	84.600	0.722 ± 0.426
Thysanoessa longipes	L	<10 mm	3.00	7	2.61	0.285	0.896	0.014 ± 0.006	1.140	3.582	0.058 ± 0.023
Thysanoessa longipes	L	10-20 mm	5.00	4	1.49	0.482	1.958	0.019 ± 0.011	12.222	49.647	0.478 ± 0.271
Thysanoessa longipes	L	20-25 mm	10.0	5	1.87	1.282	13.486	0.102 ± 0.058	91.538	1024.918	7.758 ± 4.433
Thysanoessa longipes	L	>25 mm	10.0	2	0.75	0.476	2.597	0.011 ± 0.010	66.667	349.787	1.554 ± 1.330
Thysanoessa raschii	L	-	10.0	53	19.78	0.014	102.353	1.293 ± 0.462	1.000	8188.235	97.619 ± 35.813
Thysanoessa raschii	L	<10 mm	3.00	67	25.00	0.029	168.387	3.898 ± 1.113	0.100	620.506	14.688 ± 4.249

Thysanoessa raschii	L	10-20 mm	5.00	14	5.22	0.676	25.641	0.233 ± 0.116	18.243	641.025	5.848 ± 2.893
Thysanoessa raschii	L	10-20 mm	5.00	14	5.22	0.676	25.641	0.233 ± 0.116	18.243	641.025	5.848 ± 2.893
Thysanoessa raschii	L	20-25 mm	10.0	10	3.73	1.370	7.686	0.112 ± 0.043	94.479	591.803	8.271 ± 3.262
Tomopteris sp.	L	-	2.00	1	0.37	0.392	0.392	0.001 ± 0.001	3.922	3.922	0.015 ± 0.015
Tomopteris sp.	L	20 mm	2.00	1	0.37	0.392	0.392	0.001 ± 0.001	8.467	8.467	0.032 ± 0.032
Tortanus discaudatus	M	-	2.00	1	0.37	0.333	0.333	0.001 ± 0.001	0.057	0.057	0.000 ± 0.000
Triconia borealis	S	-	1.50	101	37.69	0.200	656.250	36.489 ± 5.858	0.007	21.656	1.177 ± 0.189
Amphipods								5.946 ± 0.891			155.822 ± 29.018
Copepods								3256.505 ± 182.374			443.841 ± 27.265
Cladocerans								5.006 ± 2.907			0.135 ± 0.078
Gelatinous (jellyfish. comb jellies. pelagic tunicates)								202.780 ± 38.318			44.293 ± 7.462
Pteropods								26.457 ± 8.934			2.143 ± 0.296
Cumaceans								1.140 ± 0.478			19.733 ± 8.817
Meroplankton (larvae of benthic animals)								1572.471 ± 262.268			62.842 ± 7.106
Mysids								2.360 ± 0.764			87.265 ± 32.310
Protozoa								0.097 ± 0.097			0.001 ± 0.001
Other groups								0.003 ± 0.002			0.046 ± 0.035
Ostracods								0.115 ± 0.054			0.051 ± 0.023
Chaetognaths								31.948 ± 2.806			382.428 ± 44.910
Euphausiids								45.076 ± 7.643			184.210 ± 37.373
Entire zooplankton								5149.904 ± 321.977			1382.808 ± 78.912

Table 5 from Volkov AF. Volvenko IV (2016a) Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013. TINRO-Center. Vladivostok

The abundance of zooplankton in epipelagial regardless of season and time of day. Averaging data over the entire observation period. Region No. 3 (328 stations)

Species or taxonomic group	Frac-tion	Stage or size group	C.E.	Occurrence samples	%	Number. ind./m³ Min	Max	Average	Biomass. mg/m³ Min	Max	Average
Acartia clausi	M	-	1.50	1	0.30	0.500	0.500	0.002 ± 0.002	0.030	0.030	0.000 ± 0.000
Acartia longiremis	S	-	1.50	72	21.95	0.250	900.000	11.178 ± 3.297	0.013	45.000	0.535 ± 0.159
Acartia longiremis	M	-	2.00	28	8.54	0.440	67.901	0.915 ± 0.353	0.071	11.000	0.148 ± 0.057
Acartia tumida	S	-	1.50	1	0.30	0.100	0.100	0.000 ± 0.000	0.010	0.010	0.000 ± 0.000
Acartia tumida	M	-	2.00	8	2.44	1.928	6586.667	20.295 ± 20.112	0.289	988.000	3.044 ± 3.017
Aetideus pacificus	M	-	2.00	2	0.61	0.317	0.909	0.004 ± 0.003	0.133	0.382	0.002 ± 0.001
Aglantha digitale	M	-	1.00	16	4.88	0.250	10.989	0.115 ± 0.049	0.329	14.473	0.151 ± 0.064
Aglantha digitale	L	-	1.00	129	39.33	0.003	4.368	0.103 ± 0.021	0.450	655.172	15.460 ± 3.108
Balanus sp.	S	cypris	1.00	6	1.83	36.000	1538.000	8.896 ± 5.281	1.800	76.900	0.445 ± 0.264
Balanus sp.	S	nauplius	1.00	32	9.76	17.647	22312.500	130.681 ± 78.120	0.247	357.000	2.079 ± 1.250
Balanus sp.	M	cypris	1.00	8	2.44	2.373	35.088	0.221 ± 0.118	0.539	7.965	0.050 ± 0.027
Balanus sp.	M	nauplius	1.00	20	6.10	0.467	592.105	4.931 ± 2.412	0.053	67.500	0.562 ± 0.275
Beroe cucumis	L	-	1.00	4	1.22	0.042	0.210	0.001 ± 0.001	7.727	38.635	0.241 ± 0.139
Bivalvia gen. sp.	S	larvae	1.00	101	30.79	1.000	58736.844	334.045 ± 191.909	0.008	469.895	2.609 ± 1.516
Brachyura+Lithodidae gen. sp.	L	larvae	2.00	77	23.48	0.027	61.875	0.748 ± 0.225	0.210	480.954	5.816 ± 1.746
Bradyidius pacificus	S	-	1.50	1	0.30	10.000	10.000	0.030 ± 0.031	0.900	0.900	0.003 ± 0.003
Bradyidius pacificus	M	-	2.00	5	1.52	0.100	10.204	0.055 ± 0.034	0.050	5.041	0.027 ± 0.017
Bradyidius pacificus	L	-	2.00	1	0.30	0.132	0.132	0.000 ± 0.000	0.180	0.180	0.001 ± 0.001
Calanus glacialis+marshallae	M	-	2.00	215	65.55	0.244	1641.060	63.787 ± 8.891	0.111	743.400	28.927 ± 4.027
Calanus glacialis+marshallae	L	-	2.00	290	88.41	0.125	990.842	55.376 ± 5.801	0.350	2695.090	144.323 ± 15.075
Calanus pacificus	M	-	2.00	1	0.30	0.600	0.600	0.002 ± 0.002	0.300	0.300	0.001 ± 0.001
Caridea gen. sp.	L	larvae	2.00	26	7.93	0.012	4.029	0.061 ± 0.019	0.036	12.180	0.183 ± 0.059
Centropages abdominalis	S	-	1.50	69	21.04	0.167	1350.000	20.717 ± 5.656	0.010	81.000	1.098 ± 0.314
Centropages abdominalis	M	-	2.00	86	26.22	0.440	1266.667	21.073 ± 5.484	0.066	190.000	3.161 ± 0.823
Chiridius sp.	L	-	2.00	6	1.83	0.625	9.756	0.051 ± 0.031	1.500	23.415	0.122 ± 0.076
Clione limacina	S	-	1.00	35	10.67	0.167	138.889	2.291 ± 0.559	0.007	5.556	0.092 ± 0.022
Clione limacina	M	-	2.00	46	14.02	0.111	7.356	0.196 ± 0.038	0.100	6.363	0.170 ± 0.033
Clione limacina	L	-	2.00	89	27.13	0.004	6.457	0.068 ± 0.023	0.200	322.850	3.379 ± 1.126
Copepoda gen. sp.	S	-	1.50	5	1.52	46.875	81.522	1.061 ± 0.482	2.344	4.076	0.053 ± 0.024
Copepoda gen. sp.	S	nauplius	1.00	246	75.00	0.667	1813.333	212.836 ± 18.737	0.010	27.200	2.900 ± 0.252
Copepoda gen. sp.	S	ova	1.00	21	6.40	12.500	450.000	6.352 ± 2.175	0.050	1.800	0.025 ± 0.009
Cumacea gen. sp.	M	-	1.00	12	3.66	0.500	9.091	0.131 ± 0.049	0.292	5.318	0.077 ± 0.029
Cumacea gen. sp.	L	-	2.00	18	5.49	0.020	80.969	0.514 ± 0.284	0.371	1502.293	9.542 ± 5.263
Dimophyes arctica	L	-	1.00	15	4.57	0.033	0.733	0.010 ± 0.003	0.300	6.600	0.086 ± 0.029
Echinodermata gen. sp.	S	larvae	1.00	31	9.45	0.667	226.667	2.799 ± 0.962	0.005	1.813	0.022 ± 0.008
Echinodermata gen. sp.	M	larvae	1.00	2	0.61	2.778	3.000	0.018 ± 0.012	0.500	0.540	0.003 ± 0.002
Epilabidocera amphitrites	L	-	2.00	1	0.30	0.208	0.208	0.001 ± 0.001	0.417	0.417	0.001 ± 0.001
Eucalanus bungii	S	-	1.50	13	3.96	2.857	614.286	5.058 ± 2.274	0.200	43.000	0.406 ± 0.172
Eucalanus bungii	M	-	2.00	177	53.96	0.170	400.000	29.141 ± 3.511	0.341	800.000	58.283 ± 7.022

Species											
Eucalanus bungii	L	-	2.00	266	81.10	0.014	424.873	18.592 ± 2.358	0.100	3229.035	135.112 ± 17.508
Euphausia gen. sp.	L	furcilia	2.00	70	21.34	0.031	34.945	1.088 ± 0.214	0.093	104.835	3.180 ± 0.627
Euphausia pacifica	L	-	10.0	1	0.30	4.000	4.000	0.012 ± 0.012	140.000	140.000	0.427 ± 0.427
Euphausiacea gen. sp.	S	calyptopis	1.00	5	1.52	14.747	121.250	1.070 ± 0.550	1.180	9.700	0.086 ± 0.044
Euphausiacea gen. sp.	S	nauplius	1.00	15	4.57	6.750	720.000	6.751 ± 2.884	0.270	28.800	0.273 ± 0.116
Euphausiacea gen. sp.	S	ova	1.00	5	1.52	0.667	2343.333	7.646 ± 7.168	0.020	70.300	0.229 ± 0.215
Euphausiacea gen. sp.	M	calyptopis	2.00	44	13.41	0.029	54.479	0.869 ± 0.249	0.012	22.500	0.359 ± 0.103
Euphausiacea gen. sp.	M	furcilia	2.00	18	5.49	0.030	5.250	0.067 ± 0.026	0.054	9.450	0.121 ± 0.046
Euphausiacea gen. sp.	M	juvenis	2.00	19	5.79	2.059	166.667	3.390 ± 1.040	3.706	300.000	6.102 ± 1.872
Eurytemora herdmani	S	-	1.50	1	0.30	17.241	17.241	0.053 ± 0.053	0.414	0.414	0.001 ± 0.001
Eurytemora herdmani	M	-	2.00	1	0.30	0.100	0.100	0.000 ± 0.000	0.006	0.006	0.000 ± 0.000
Fritillaria sp.	S	-	1.00	41	12.50	0.769	576.923	13.541 ± 2.943	0.013	9.808	0.235 ± 0.050
Gaetanus simplex	L	-	2.00	1	0.30	0.604	0.604	0.002 ± 0.002	1.389	1.389	0.004 ± 0.004
Gaetanus sp.	L	-	2.00	1	0.30	0.183	0.183	0.001 ± 0.001	0.421	0.421	0.001 ± 0.001
Gaidius variabilis	M	-	2.00	1	0.30	0.732	0.732	0.002 ± 0.002	0.779	0.779	0.002 ± 0.002
Gammaridae gen. sp.	M	-	1.50	3	0.91	0.200	3.400	0.016 ± 0.011	0.100	1.700	0.008 ± 0.006
Gammaridae gen. sp.	L	-	2.00	56	17.07	0.012	75.406	0.676 ± 0.265	0.120	754.060	6.755 ± 2.651
Globigerina sp.	S	-	1.00	31	9.45	6.250	800.000	10.558 ± 3.186	0.050	6.400	0.084 ± 0.025
Hyperia galba	L	-	3.00	1	0.30	0.038	0.038	0.000 ± 0.000	0.939	0.939	0.003 ± 0.003
Hyperia medusarum	L	-	3.00	3	0.91	0.008	0.838	0.003 ± 0.003	0.300	33.500	0.105 ± 0.102
Limacina helicina	S	-	1.00	135	41.16	0.667	16933.332	279.655 ± 74.138	0.010	254.000	4.195 ± 1.112
Limacina helicina	M	-	1.00	110	33.54	0.056	1758.000	22.124 ± 7.048	0.027	838.566	10.551 ± 3.362
Limacina helicina	L	-	1.00	71	21.65	0.060	32.160	0.590 ± 0.161	0.223	119.603	2.193 ± 0.599
Metridia pacifica	M	-	2.00	232	70.73	0.115	783.284	51.684 ± 5.859	0.078	529.500	34.927 ± 3.961
Metridia pacifica	L	-	2.00	187	57.01	0.216	505.556	9.737 ± 1.990	0.188	455.000	8.781 ± 1.796
Metridia sp.	S	copepodit	1.50	180	54.88	0.250	3455.056	133.104 ± 16.480	0.010	134.747	5.233 ± 0.645
Metridia sp.	M	copepodit	2.00	79	24.09	0.734	1018.537	35.497 ± 6.540	0.220	305.561	10.649 ± 1.962
Microcalanus pygmaeus	S	-	1.50	199	60.67	1.000	1790.000	94.931 ± 10.832	0.014	25.060	1.329 ± 0.152
Microsetella sp.	S	-	1.50	81	24.70	0.588	270.588	11.836 ± 1.860	0.010	4.600	0.216 ± 0.033
Mysida gen.sp.	M	larvae	1.00	5	1.52	0.480	17.647	0.067 ± 0.054	0.082	3.000	0.011 ± 0.009
Mysida gen.sp.	L	-	2.00	6	1.83	0.294	3.895	0.019 ± 0.012	17.544	233.700	1.163 ± 0.746
Mysida gen.sp.	L	<10 mm	2.00	9	2.74	0.230	0.941	0.010 ± 0.004	0.532	2.178	0.024 ± 0.009
Neocalanus cristatus	M	-	2.00	1	0.30	10.500	10.500	0.032 ± 0.032	4.200	4.200	0.013 ± 0.013
Neocalanus cristatus	L	-	2.00	160	48.78	0.010	99.210	3.353 ± 0.508	0.100	992.100	30.115 ± 4.680
Neocalanus plumchrus+flemingeri	M	-	2.00	51	15.55	1.143	236.000	5.289 ± 1.134	0.400	82.600	1.870 ± 0.400
Neocalanus plumchrus+flemingeri	L	-	2.00	277	84.45	0.120	513.840	28.815 ± 3.278	0.300	1284.600	73.490 ± 8.228
Neocalanus sp.	S	copepodit	1.50	51	15.55	8.427	975.000	15.402 ± 3.943	0.312	36.075	0.575 ± 0.147
Neocalanus sp.	M	copepodit	2.00	48	14.63	0.217	80.000	1.121 ± 0.317	0.076	28.080	0.393 ± 0.111
Oikopleura vanhoeffeni	S	-	1.00	22	6.71	0.217	156.522	1.982 ± 0.660	0.007	5.322	0.067 ± 0.022
Oikopleura vanhoeffeni	M	-	1.00	51	15.55	0.412	392.000	10.813 ± 2.633	0.036	34.104	0.943 ± 0.229
Oikopleura vanhoeffeni	L	-	2.00	67	20.43	0.078	33.333	0.803 ± 0.181	0.156	66.666	1.607 ± 0.362
Oithona similis	S	-	1.50	300	91.46	14.286	8792.857	1911.194 ± 93.696	0.200	123.100	27.374 ± 1.328
Ostracoda gen. sp.	S	-	1.00	1	0.30	18.000	18.000	0.055 ± 0.055	1.746	1.746	0.005 ± 0.005
Ostracoda gen. sp.	M	-	1.00	10	3.05	0.111	6.242	0.062 ± 0.028	0.046	2.603	0.026 ± 0.012

Species											
Ostracoda gen. sp.	L	-	1.00	16	4.88	0.045	0.339	0.008 ± 0.002	0.066	0.500	0.012 ± 0.003
Paguridae gen. sp.	L	larvae	2.00	36	10.98	0.028	28.490	0.247 ± 0.116	0.100	100.000	0.866 ± 0.406
Paraeuchaeta elongata	L	-	2.00	9	2.74	0.133	0.702	0.008 ± 0.003	0.559	2.947	0.032 ± 0.013
Parasagitta elegans	S	-	1.00	11	3.35	9.184	122.857	1.340 ± 0.553	0.643	8.600	0.094 ± 0.039
Parasagitta elegans	M	-	2.00	129	39.33	0.258	245.000	7.958 ± 1.364	0.046	49.000	1.545 ± 0.268
Parasagitta elegans	L	-	10.0	189	57.62	0.073	87.273	11.065 ± 0.925	1.600	1920.000	239.874 ± 20.075
Parasagitta elegans	L	<10 mm	2.00	78	23.78	0.075	31.000	1.116 ± 0.200	0.060	24.800	0.897 ± 0.162
Parasagitta elegans	L	10-20 mm	5.00	177	53.96	0.180	71.094	7.692 ± 0.653	0.900	370.256	39.592 ± 3.370
Parasagitta elegans	L	20-25 mm	10.0	118	35.98	0.759	85.920	3.069 ± 0.414	13.893	1606.700	51.124 ± 7.154
Parasagitta elegans	L	25-30 mm	10.0	32	9.76	0.755	10.390	0.341 ± 0.070	25.000	363.299	11.259 ± 2.394
Parasagitta elegans	L	>30 mm	10.0	11	3.35	0.833	4.301	0.065 ± 0.022	43.667	223.656	3.339 ± 1.159
Pareuchaeta sp.	M	copepodit	2.00	1	0.30	17.544	17.544	0.053 ± 0.054	12.912	12.912	0.039 ± 0.039
Podon leuckartii	S	-	1.00	2	0.61	27.778	94.444	0.373 ± 0.300	0.750	2.550	0.010 ± 0.008
Polychaeta gen. sp.	S	larvae	1.00	58	17.68	0.067	7837.500	157.453 ± 39.576	0.002	219.450	4.255 ± 1.072
Polychaeta gen. sp.	M	larvae	1.00	28	8.54	0.333	26.947	0.645 ± 0.169	0.297	24.037	0.575 ± 0.151
Polychaeta gen. sp.	L	larvae	2.00	7	2.13	0.040	0.720	0.006 ± 0.003	0.060	1.080	0.010 ± 0.004
Primno macropa	L	-	3.00	1	0.30	2.059	2.059	0.006 ± 0.006	34.257	34.257	0.104 ± 0.105
Primno macropa	L	<5 mm	2.00	1	0.30	0.784	0.784	0.002 ± 0.002	1.725	1.725	0.005 ± 0.005
Primno macropa	L	5-7 mm	3.00	1	0.30	0.294	0.294	0.001 ± 0.001	1.985	1.985	0.006 ± 0.006
Primno macropa	L	>10 mm	3.00	1	0.30	0.980	0.980	0.003 ± 0.003	39.333	39.333	0.120 ± 0.120
Pseudocalanus minutus	M	-	2.00	204	62.20	1.400	1895.833	114.609 ± 13.716	0.176	227.500	13.912 ± 1.664
Pseudocalanus newmani	S	-	1.50	109	33.23	4.444	1976.087	132.165 ± 16.600	0.178	79.043	5.287 ± 0.664
Pseudocalanus sp.	S	-	1.50	204	62.20	3.333	16421.053	507.324 ± 65.868	0.133	656.842	20.293 ± 2.635
Pseudocalanus sp.	M	-	2.00	118	35.98	1.667	937.500	39.143 ± 5.195	0.150	84.375	3.523 ± 0.468
Racovitzanus antarcticus	M	-	2.00	7	2.13	0.467	17.544	0.067 ± 0.054	0.137	4.912	0.019 ± 0.015
Radiolaria gen. sp.	S	-	1.00	1	0.30	37.190	37.190	0.113 ± 0.114	0.372	0.372	0.001 ± 0.001
Scolecithricella minor	S	-	1.50	13	3.96	0.125	41.005	0.502 ± 0.198	0.010	3.280	0.040 ± 0.016
Scolecithricella minor	M	-	2.00	70	21.34	0.063	135.417	2.299 ± 0.710	0.010	21.667	0.375 ± 0.114
Themisto libellula	L	-	5.00	48	14.63	0.020	6.771	0.171 ± 0.040	1.500	504.515	12.794 ± 3.024
Themisto libellula	L	5-10 mm	3.00	60	18.29	0.183	6.771	0.196 ± 0.037	2.569	94.792	2.748 ± 0.523
Themisto libellula	L	10-20 mm	5.00	31	9.45	0.459	17.500	0.321 ± 0.091	46.818	1785.000	32.555 ± 9.307
Themisto libellula	L	20-30 mm	5.00	9	2.74	0.151	3.520	0.025 ± 0.012	45.300	1056.000	7.564 ± 3.744
Themisto pacifica	S	-	1.00	16	4.88	1.000	41.304	0.507 ± 0.190	0.138	5.700	0.070 ± 0.026
Themisto pacifica	M	-	2.00	59	17.99	0.040	58.030	1.020 ± 0.253	0.026	38.300	0.673 ± 0.167
Themisto pacifica	L	-	3.00	138	42.07	0.015	7.985	0.537 ± 0.066	0.200	103.800	6.825 ± 0.841
Themisto pacifica	L	<5 mm	2.00	107	32.62	0.136	11.067	0.345 ± 0.052	0.226	16.600	0.551 ± 0.082
Themisto pacifica	L	5-7 mm	3.00	18	5.49	0.275	4.945	0.083 ± 0.026	1.624	29.176	0.501 ± 0.157
Themisto pacifica	L	7-10 mm	3.00	12	3.66	0.060	1.630	0.019 ± 0.007	0.900	23.478	0.278 ± 0.105
Themisto pacifica	L	>10 mm	3.00	1	0.30	0.455	0.455	0.001 ± 0.001	13.509	13.509	0.041 ± 0.041
Thysanoessa inermis	L	-	10.0	74	22.56	0.006	70.862	0.843 ± 0.271	0.330	4606.000	53.921 ± 17.567
Thysanoessa inermis	L	<10 mm	3.00	28	8.54	0.027	36.390	0.536 ± 0.187	0.080	109.170	1.609 ± 0.560
Thysanoessa inermis	L	10-20 mm	5.00	20	6.10	0.131	10.784	0.103 ± 0.041	3.668	301.952	2.813 ± 1.127
Thysanoessa inermis	L	20-25 mm	10.0	5	1.52	0.980	12.222	0.073 ± 0.043	75.176	977.760	5.829 ± 3.407
Thysanoessa inspinata	L	-	5.00	8	2.44	0.042	1.300	0.011 ± 0.005	1.406	43.500	0.358 ± 0.165

Species											
Thysanoessa longipes	L	-	5.00	34	10.37	0.005	1.875	0.041 ± 0.011	0.400	159.400	3.342 ± 0.879
Thysanoessa longipes	L	<10 mm	3.00	38	11.59	0.150	9.375	0.117 ± 0.037	0.600	37.500	0.469 ± 0.147
Thysanoessa longipes	L	10-20 mm	5.00	11	3.35	0.102	3.333	0.032 ± 0.013	2.586	84.512	0.805 ± 0.333
Thysanoessa longipes	L	20-25 mm	10.0	1	0.30	4.197	4.197	0.013 ± 0.013	318.980	318.980	0.972 ± 0.974
Thysanoessa longipes	L	>25 mm	10.0	1	0.30	0.758	0.758	0.002 ± 0.002	106.122	106.122	0.324 ± 0.324
Thysanoessa raschii	L	-	10.0	97	29.57	0.006	48.686	1.136 ± 0.258	0.400	3408.000	85.867 ± 19.303
Thysanoessa raschii	L	<10 mm	3.00	81	24.70	0.040	43.171	0.949 ± 0.216	0.140	151.100	3.465 ± 0.782
Thysanoessa raschii	L	10-20 mm	5.00	32	9.76	0.407	12.727	0.206 ± 0.057	10.175	318.175	5.258 ± 1.437
Thysanoessa raschii	L	20-25 mm	10.0	30	9.15	0.860	9.836	0.229 ± 0.052	66.239	640.082	16.330 ± 3.612
Tomopteris sp.	L	-	2.00	1	0.30	0.186	0.186	0.001 ± 0.001	1.860	1.860	0.006 ± 0.006
Triconia borealis	S	-	1.50	148	45.12	0.200	1222.222	51.930 ± 7.939	0.007	36.667	1.629 ± 0.242
Amphipods								3.933 ± 0.436			71.709 ± 10.858
Copepods								3616.679 ± 123.055			618.297 ± 27.102
Cladocerans								0.373 ± 0.300			0.010 ± 0.008
Gelatinous (jellyfish. comb jellies. pelagic tunicates)								27.368 ± 4.008			18.789 ± 3.142
Pteropods								304.924 ± 74.475			20.579 ± 3.764
Cumaceans								0.645 ± 0.288			9.619 ± 5.264
Meroplankton (larvae of benthic animals)								640.752 ± 211.028			17.475 ± 2.897
Mysids								0.097 ± 0.056			1.198 ± 0.746
Protozoa								10.671 ± 3.188			0.086 ± 0.026
Other groups								0.001 ± 0.001			0.006 ± 0.006
Ostracods								0.125 ± 0.062			0.044 ± 0.013
Chaetognaths								32.645 ± 1.915			347.722 ± 21.742
Euphausiids								25.183 ± 7.838			192.140 ± 26.763
Entire zooplankton								4663.396 ± 255.565			1297.674 ± 45.849

Table 6 from Volkov AF. Volvenko IV (2016a) Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013. TINRO-Center, Vladivostok

The abundance of zooplankton in epipelagial regardless of season and time of day. Averaging data over the entire observation period. Region No. 4 (191 stations)

Species or taxonomic group	Frac-tion	Stage or size group	C.E.	Occurrence samples	%	Number. ind./m^3 Min	Max	Average	Biomass. mg/m^3 Min	Max	Average
Acartia longiremis	S	-	1.50	60	31.41	0.250	621.951	23.490 ± 5.187	0.013	31.098	1.137 ± 0.253
Acartia longiremis	M	-	2.00	17	8.90	0.400	5.000	0.183 ± 0.052	0.065	0.810	0.030 ± 0.008
Aglantha digitale	M	-	1.00	15	7.85	0.100	50.000	0.632 ± 0.298	0.132	65.850	0.832 ± 0.392
Aglantha digitale	L	-	1.00	71	37.17	0.001	4.691	0.097 ± 0.028	0.100	703.704	14.651 ± 4.131
Balanus sp.	S	cypris	1.00	1	0.52	776.000	776.000	4.063 ± 4.074	38.800	38.800	0.203 ± 0.204.
Balanus sp.	S	nauplius	1.00	13	6.81	17.241	150.000	3.687 ± 1.227	0.241	2.400	0.056 ± 0.019
Balanus sp.	M	cypris	1.00	2	1.05	0.952	15.873	0.088 ± 0.083	0.216	3.603	0.020 ± 0.019
Balanus sp.	M	nauplius	1.00	16	8.38	0.233	84.211	1.131 ± 0.577	0.027	9.600	0.129 ± 0.066
Beroe cucumis	L	-	1.00	3	1.57	0.051	0.130	0.001 ± 0.001	9.383	23.917	0.246 ± 0.152
Bivalvia gen. sp.	S	larvae	1.00	63	32.98	1.000	3750.000	146.594 ± 30.291	0.008	30.000	1.173 ± 0.242
Brachyura+Lithodidae gen. sp.	L	larvae	2.00	52	27.23	0.013	15.181	0.342 ± 0.108	0.100	118.000	2.655 ± 0.843
Calanus glacialis+marshallae	M	-	2.00	163	85.34	0.182	2412.583	94.004 ± 17.385	0.082	1092.900	42.635 ± 7.875
Calanus glacialis+marshallae	L	-	2.00	177	92.67	0.331	433.321	64.231 ± 5.965	0.900	1213.300	168.591 ± 15.890
Calanus pacificus	M	-	2.00	1	0.52	0.200	0.200	0.001 ± 0.001	0.100	0.100	0.001 ± 0.001
Caridea gen. sp.	L	larvae	2.00	15	7.85	0.014	2.000	0.031 ± 0.013	0.042	6.046	0.093 ± 0.039
Centropages abdominalis	S	-	1.50	33	17.28	1.667	562.500	11.599 ± 3.683	0.100	28.125	0.590 ± 0.185
Centropages abdominalis	M	-	2.00	45	23.56	0.500	2909.500	17.438 ± 15.270	0.075	436.425	2.616 ± 2.291
Chiridius sp.	L	-	2.00	4	2.09	0.649	6.098	0.043 ± 0.033	1.558	14.634	0.104 ± 0.078
Clione limacina	S	-	1.00	15	7.85	0.167	49.180	1.822 ± 0.530	0.007	1.967	0.073 ± 0.021
Clione limacina	M	-	2.00	25	13.09	0.111	8.000	0.255 ± 0.071	0.100	6.920	0.221 ± 0.061
Clione limacina	L	-	2.00	51	26.70	0.000	0.649	0.036 ± 0.007	0.010	32.468	1.786 ± 0.337
Copepoda gen. sp.	S	-	1.50	2	1.05	53.571	119.318	0.905 ± 0.685	2.679	5.966	0.045 ± 0.034
Copepoda gen. sp.	S	nauplius	1.00	128	67.02	0.667	2922.078	263.467 ± 31.759	0.010	37.987	3.566 ± 0.426
Copepoda gen. sp.	S	ova	1.00	15	7.85	2.500	625.000	8.537 ± 3.721	0.010	2.500	0.034 ± 0.015
Cumacea gen. sp.	M	-	1.00	2	1.05	0.976	1.905	0.015 ± 0.011	0.571	1.114	0.009 ± 0.007
Cumacea gen. sp.	L	-	2.00	7	3.66	0.060	78.223	1.093 ± 0.532	1.113	1451.356	20.279 ± 9.879
Dimophyes arctica	L	-	1.00	1	0.52	0.067	0.067	0.000 ± 0.000	0.600	0.600	0.003 ± 0.003
Echinodermata gen. sp.	S	larvae	1.00	8	4.19	2.000	52.941	0.984 ± 0.403	0.016	0.424	0.008 ± 0.003
Echinodermata gen. sp.	M	larvae	1.00	1	0.52	1.111	1.111	0.006 ± 0.006	0.200	0.200	0.001 ± 0.001
Eucalanus bungii	S	-	1.50	8	4.19	27.108	642.857	6.567 ± 3.719	2.358	55.929	0.567 ± 0.323
Eucalanus bungii	M	-	2.00	72	37.70	0.200	506.600	19.393 ± 4.671	0.400	1013.200	38.786 ± 9.342
Eucalanus bungii	L	-	2.00	116	60.73	0.014	262.882	10.916 ± 1.973	0.100	1997.904	79.765 ± 14.625
Euphausia gen. sp.	L	furcilia	2.00	47	24.61	0.035	64.900	2.084 ± 0.527	0.105	194.700	6.064 ± 1.546
Euphausia pacifica	L	-	10.0	1	0.52	0.200	0.200	0.001 ± 0.001	7.000	7.000	0.037 ± 0.037
Euphausiacea gen. sp.	S	calyptopis	1.00	1	0.52	50.000	50.000	0.262 ± 0.262	4.000	4.000	0.021 ± 0.021
Euphausiacea gen. sp.	S	nauplius	1.00	6	3.14	13.393	500.000	4.652 ± 2.924	0.536	20.000	0.189 ± 0.118
Euphausiacea gen. sp.	M	calyptopis	2.00	31	16.23	0.247	110.169	1.612 ± 0.648	0.102	45.500	0.666 ± 0.268
Euphausiacea gen. sp.	M	furcilia	2.00	8	4.19	0.125	2.404	0.061 ± 0.025	0.225	4.327	0.110 ± 0.046
Euphausiacea gen. sp.	M	juvenis	2.00	8	4.19	12.500	107.143	1.977 ± 0.852	22.500	192.857	3.559 ± 1.534

Eurytemora herdmani	M	-	2.00	1	0.52	1.600	1.600	0.008 ± 0.008	0.091	0.091	0.000 ± 0.000
Fritillaria sp.	S	-	1.00	26	13.61	0.769	428.571	12.972 ± 3.305	0.013	7.286	0.231 ± 0.057
Fritillaria sp.	M	-	1.00	1	0.52	3.333	3.333	0.017 ± 0.017	0.200	0.200	0.001 ± 0.001
Gammaridae gen. sp.	M	-	1.50	3	1.57	0.440	0.920	0.012 ± 0.007	0.251	0.460	0.006 ± 0.004
Gammaridae gen. sp.	L	-	2.00	23	12.04	0.018	1.906	0.046 ± 0.013	0.180	19.060	0.456 ± 0.131
Globigerina sp.	S	-	1.00	3	1.57	18.293	1987.500	20.907 ± 14.715	0.146	15.900	0.167 ± 0.118
Heterorhabdus tanneri	L	-	2.00	1	0.52	0.080	0.080	0.000 ± 0.000	0.312	0.312	0.002 ± 0.002
Limacina helicina	S	-	1.00	63	32.98	6.667	1333.333	41.052 ± 9.815	0.100	20.000	0.616 ± 0.147
Limacina helicina	M	-	1.00	45	23.56	0.056	50.633	2.228 ± 0.538	0.027	24.152	1.063 ± 0.257
Limacina helicina	L	-	1.00	30	15.71	0.002	44.367	0.424 ± 0.254	0.007	165.000	1.576 ± 0.944
Metridia pacifica	M	-	2.00	104	54.45	0.011	500.000	27.232 ± 4.847	0.007	338.000	18.401 ± 3.277
Metridia pacifica	L	-	2.00	64	33.51	0.222	53.111	3.568 ± 0.627	0.200	47.800	3.191 ± 0.563
Metridia sp.	S	copepodit	1.50	90	47.12	2.500	2500.000	135.366 ± 20.422	0.100	100.000	5.337 ± 0.811
Metridia sp.	M	copepodit	2.00	48	25.13	0.440	773.500	27.260 ± 6.987	0.132	232.050	8.178 ± 2.096
Microcalanus pygmaeus	S	-	1.50	66	34.55	7.143	640.000	35.650 ± 6.636	0.100	8.960	0.499 ± 0.093
Microsetella sp.	S	-	1.50	22	11.52	11.765	311.765	4.888 ± 1.790	0.200	5.300	0.092 ± 0.031
Mysida gen.sp.	M	larvae	1.00	3	1.57	0.064	0.356	0.003 ± 0.002	0.011	0.061	0.000 ± 0.000
Mysida gen.sp.	L	-	2.00	6	3.14	0.233	0.667	0.012 ± 0.005	13.872	39.766	0.723 ± 0.326
Mysida gen.sp.	L	<10 mm	2.00	5	2.62	0.233	0.635	0.009 ± 0.004	0.538	1.469	0.020 ± 0.010
Mysida gen.sp.	L	10-20 mm	2.00	1	0.52	0.667	0.667	0.003 ± 0.003	12.765	12.765	0.067 ± 0.067
Neocalanus cristatus	L	-	2.00	58	30.37	0.010	66.375	1.667 ± 0.469	0.100	531.000	15.426 ± 4.187
Neocalanus plumchrus+flemingeri	M	-	2.00	28	14.66	0.286	337.662	8.156 ± 2.689	0.100	118.182	2.900 ± 0.947
Neocalanus plumchrus+flemingeri	L	-	2.00	136	71.20	0.004	476.000	21.971 ± 3.556	0.010	1190.000	56.647 ± 8.994
Neocalanus sp.	S	copepodit	1.50	42	21.99	9.494	589.286	21.843 ± 5.205	0.351	21.804	0.819 ± 0.196
Neocalanus sp.	M	copepodit	2.00	28	14.66	0.513	61.765	1.310 ± 0.416	0.180	21.679	0.460 ± 0.146
Oikopleura vanhoeffeni	S	-	1.00	5	2.62	2.174	58.824	0.713 ± 0.415	0.074	2.000	0.024 ± 0.014
Oikopleura vanhoeffeni	M	-	1.00	32	16.75	0.976	170.000	5.607 ± 1.699	0.085	15.300	0.502 ± 0.153
Oikopleura vanhoeffeni	L	-	2.00	54	28.27	0.100	45.400	1.800 ± 0.454	0.200	90.800	3.601 ± 0.908
Oithona similis	S	-	1.50	172	90.05	7.143	15000.000	1664.306 ± 136.098	0.100	210.000	23.879 ± 1.916
Ostracoda gen. sp.	M	-	1.00	1	0.52	2.462	2.462	0.013 ± 0.013	1.026	1.026	0.005 ± 0.005
Paguridae gen. sp.	L	larvae	2.00	8	4.19	0.057	0.741	0.011 ± 0.005	0.200	2.600	0.040 ± 0.019
Parasagitta elegans	S	-	1.00	3	1.57	5.714	211.429	1.601 ± 1.201	0.400	14.800	0.112 ± 0.084
Parasagitta elegans	M	-	2.00	74	38.74	0.494	223.889	12.197 ± 2.395	0.099	40.300	2.277 ± 0.438
Parasagitta elegans	L	-	10.0	108	56.54	0.014	126.514	15.545 ± 1.766	0.300	2783.300	336.796 ± 38.428
Parasagitta elegans	L	<10 mm	2.00	46	24.08	0.224	30.625	1.490 ± 0.328	0.179	24.500	1.195 ± 0.263
Parasagitta elegans	L	10-20 mm	5.00	100	52.36	0.794	53.460	7.211 ± 0.796	4.135	273.350	37.210 ± 4.101
Parasagitta elegans	L	20-25 mm	10.0	85	44.50	0.971	91.150	7.234 ± 1.137	13.346	1704.500	122.449 ± 19.950
Parasagitta elegans	L	25-30 mm	10.0	24	12.57	1.142	16.667	0.659 ± 0.173	34.241	491.667	20.881 ± 5.436
Parasagitta elegans	L	>30 mm	10.0	4	2.09	1.205	2.353	0.032 ± 0.017	57.012	125.000	1.591 ± 0.846
Polychaeta gen. sp.	S	larvae	1.00	60	31.41	3.333	6169.355	223.755 ± 60.767	0.093	172.742	6.104 ± 1.673
Polychaeta gen. sp.	M	larvae	1.00	18	9.42	0.440	91.333	2.116 ± 0.844	0.392	81.469	1.887 ± 0.753
Polychaeta gen. sp.	L	larvae	2.00	2	1.05	0.002	1.120	0.006 ± 0.006	0.003	1.680	0.009 ± 0.009
Primno macropa	M	-	1.50	1	0.52	0.270	0.270	0.001 ± 0.001	0.270	0.270	0.001 ± 0.001
Primno macropa	L	-	3.00	2	1.05	0.176	4.000	0.022 ± 0.021	3.000	66.556	0.364 ± 0.350

Species											
Primno macropa	L	7-10 mm	3.00	1	0.52	1.333	1.333	0.007 ± 0.007	26.400	26.400	0.138 ± 0.139
Primno macropa	L	>10 mm	3.00	1	0.52	2.667	2.667	0.014 ± 0.014	106.987	106.987	0.560 ± 0.562
Pseudocalanus minutus	M	-	2.00	129	67.54	0.833	6380.833	125.968 ± 35.819	0.100	765.700	15.290 ± 4.309
Pseudocalanus newmani	S	-	1.50	67	35.08	34.444	2555.556	123.804 ± 21.191	1.378	102.222	4.952 ± 0.848
Pseudocalanus sp.	S	-	1.50	120	62.83	11.111	4380.682	490.232 ± 57.428	0.444	175.227	19.609 ± 2.297
Pseudocalanus sp.	M	-	2.00	67	35.08	0.833	1261.667	47.956 ± 9.948	0.075	113.550	4.316 ± 0.895
Scolecithricella minor	S	-	1.50	9	4.71	6.331	58.036	1.318 ± 0.504	0.506	4.643	0.103 ± 0.040
Scolecithricella minor	M	-	2.00	26	13.61	0.920	168.445	2.502 ± 1.027	0.175	26.951	0.404 ± 0.164
Scolecithricella ovata	M	-	2.00	1	0.52	0.270	0.270	0.001 ± 0.001	0.081	0.081	0.000 ± 0.000
Themisto libellula	L	-	5.00	55	28.80	0.028	12.987	0.473 ± 0.103	2.100	967.701	35.356 ± 7.671
Themisto libellula	L	5-10 mm	3.00	37	19.37	0.100	5.357	0.219 ± 0.050	1.400	75.000	3.051 ± 0.695
Themisto libellula	L	10-20 mm	5.00	37	19.37	0.549	12.651	0.525 ± 0.124	55.998	1290.402	53.394 ± 12.630
Themisto libellula	L	20-30 mm	5.00	11	5.76	0.214	9.823	0.154 ± 0.066	64.200	2946.900	46.247 ± 19.884
Themisto pacifica	S	-	1.00	5	2.62	2.000	22.464	0.188 ± 0.124	0.276	3.100	0.026 ± 0.017
Themisto pacifica	M	-	2.00	30	15.71	0.200	17.121	0.491 ± 0.143	0.132	11.300	0.324 ± 0.094
Themisto pacifica	L	-	3.00	61	31.94	0.008	5.000	0.399 ± 0.063	0.100	61.195	5.053 ± 0.790
Themisto pacifica	L	<5 mm	2.00	37	19.37	0.163	2.632	0.174 ± 0.035	0.244	4.211	0.281 ± 0.056
Themisto pacifica	L	5-7 mm	3.00	18	9.42	0.326	4.500	0.106 ± 0.032	2.082	26.550	0.620 ± 0.188
Themisto pacifica	L	7-10 mm	3.00	9	4.71	0.027	1.500	0.023 ± 0.011	0.400	21.360	0.336 ± 0.155
Thysanoessa inermis	L	-	10.0	39	20.42	0.031	33.460	0.636 ± 0.230	2.000	2174.900	40.316 ± 14.905
Thysanoessa inermis	L	<10 mm	3.00	10	5.24	0.700	28.000	0.384 ± 0.174	2.100	84.000	1.151 ± 0.522
Thysanoessa inermis	L	10-20 mm	5.00	9	4.71	0.029	4.000	0.068 ± 0.030	0.812	112.000	1.931 ± 0.841
Thysanoessa inermis	L	20-25 mm	10.0	1	0.52	1.220	1.220	0.006 ± 0.006	88.049	88.049	0.461 ± 0.462
Thysanoessa inspinata	L	-	5.00	6	3.14	0.144	1.509	0.023 ± 0.011	4.820	50.500	0.767 ± 0.378
Thysanoessa longipes	L	-	5.00	17	8.90	0.009	1.948	0.042 ± 0.017	0.800	157.516	3.438 ± 1.363
Thysanoessa longipes	L	<10 mm	3.00	21	10.99	0.175	3.778	0.088 ± 0.027	0.700	15.112	0.351 ± 0.109
Thysanoessa longipes	L	10-20 mm	5.00	6	3.14	0.549	1.948	0.027 ± 0.013	14.098	49.395	0.677 ± 0.319
Thysanoessa longipes	L	20-25 mm	10.0	1	0.52	2.448	2.448	0.013 ± 0.013	186.071	186.071	0.974 ± 0.977
Thysanoessa raschii	L	-	10.0	57	29.84	0.009	74.390	1.292 ± 0.437	0.600	5951.220	100.572 ± 34.807
Thysanoessa raschii	L	<10 mm	3.00	53	27.75	0.043	64.634	1.092 ± 0.376	0.150	238.177	3.978 ± 1.382
Thysanoessa raschii	L	10-20 mm	5.00	15	7.85	0.485	16.049	0.206 ± 0.098	12.125	401.235	5.299 ± 2.492
Thysanoessa raschii	L	20-25 mm	10.0	13	6.81	1.087	9.756	0.141 ± 0.058	73.043	704.390	10.295 ± 4.198
Tomopteris sp.	L	-	2.00	1	0.52	0.125	0.125	0.001 ± 0.001	1.040	1.040	0.005 ± 0.005
Triconia borealis	S	-	1.50	75	39.27	2.000	815.625	39.941 ± 7.347	0.066	24.469	1.255 ± 0.224

Amphipods	2.854 ± 0.275	146.216 ± 24.807
Copepods	3305.721 ± 161.137	520.228 ± 27.675
Gelatinous (jellyfish. comb jellies. pelagic tunicates)	21.841 ± 3.779	20.091 ± 4.253
Pteropods	45.817 ± 9.847	5.335 ± 1.047
Cumaceans	1.108 ± 0.533	20.287 ± 9.879
Meroplankton (larvae of benthic animals)	382.813 ± 68.040	12.378 ± 2.045
Mysids	0.027 ± 0.008	0.810 ± 0.333
Protozoa	20.907 ± 14.715	0.167 ± 0.118
Other groups	0.001 ± 0.001	0.005 ± 0.005
Ostracods	0.013 ± 0.013	0.005 ± 0.005

Chaetognaths	45.969 ± 3.516	522.510 ± 43.842
Euphausiids	14.667 ± 3.237	180.854 ± 38.322
Entire zooplankton	3841.737 ± 175.914	1428.887 ± 69.950

Table 7 from Volkov AF. Volvenko IV (2016a) Net Zooplankton of the Western Part of the Bering Sea: Occurrence, Abundance, and Biomass. 1986-2013. TINRO-Center, Vladivostok

The abundance of zooplankton in epipelagial regardless of season and time of day. Averaging data over the entire observation period. Region No. 5 (407 stations)

Species or taxonomic group	Fraction	Stage or size group	C.E.	Occurrence samples	Occurrence %	Number. ind./m^3 Min	Number. ind./m^3 Max	Number. ind./m^3 Average	Biomass. mg/m^3 Min	Biomass. mg/m^3 Max	Biomass. mg/m^3 Average
Acartia longiremis	S	-	1.50	38	9.34	0.250	400.000	4.277 ± 1.275	0.013	20.000	0.208 ± 0.063
Acartia longiremis	M	-	2.00	21	5.16	0.300	228.000	0.771 ± 0.567	0.049	36.936	0.125 ± 0.092
Acartia tumida	M	-	2.00	7	1.72	0.364	100.000	0.354 ± 0.260	0.055	15.000	0.053 ± 0.039
Aglantha digitale	S	-	1.00	3	0.74	0.846	33.582	0.125 ± 0.092	0.127	5.037	0.019 ± 0.014
Aglantha digitale	M	-	1.00	27	6.63	0.100	14.706	0.184 ± 0.054	0.132	19.368	0.242 ± 0.072
Aglantha digitale	L	-	1.00	230	56.51	0.001	3.300	0.144 ± 0.017	0.150	495.074	21.739 ± 2.510
Balanus sp.	S	nauplius	1.00	15	3.69	6.250	2356.250	9.659 ± 6.026	0.099	37.700	0.151 ± 0.096
Balanus sp.	M	cypris	1.00	6	1.47	0.860	111.000	0.378 ± 0.282	0.195	25.197	0.086 ± 0.064
Balanus sp.	M	nauplius	1.00	7	1.72	0.050	619.298	1.992 ± 1.577	0.006	70.600	0.227 ± 0.180
Beroe cucumis	L	-	1.00	7	1.72	0.029	8.933	0.024 ± 0.022	5.335	1643.458	4.387 ± 4.047
Bivalvia gen. sp.	S	larvae	1.00	94	23.10	1.000	9410.000	131.604 ± 40.139	0.008	75.280	1.053 ± 0.321
Brachyura+Lithodidae gen. sp.	L	larvae	2.00	82	20.15	0.013	13.034	0.278 ± 0.059	0.100	101.317	2.158 ± 0.455
Bradyidius pacificus	M	-	2.00	13	3.19	0.394	6.667	0.052 ± 0.020	0.195	3.293	0.026 ± 0.010
Bradyidius pacificus	L	-	2.00	5	1.23	0.075	1.774	0.006 ± 0.004	0.102	2.423	0.008 ± 0.006
Calanus glacialis+marshallae	M	-	2.00	163	40.05	0.127	2845.588	27.173 ± 8.943	0.058	1289.051	12.316 ± 4.051
Calanus glacialis+marshallae	L	-	2.00	231	56.76	0.037	734.244	17.747 ± 3.273	0.100	1710.788	43.141 ± 7.721
Calanus pacificus	M	-	2.00	7	1.72	0.040	2.200	0.012 ± 0.007	0.020	1.100	0.006 ± 0.004
Calanus pacificus	L	-	2.00	1	0.25	0.100	0.100	0.000 ± 0.000	0.084	0.084	0.000 ± 0.000
Candacia columbiae	L	-	2.00	10	2.46	0.056	1.203	0.006 ± 0.003	0.160	3.429	0.016 ± 0.009
Caridea gen. sp.	L	larvae	2.00	38	9.34	0.057	18.235	0.180 ± 0.057	0.174	55.125	0.531 ± 0.171
Centropages abdominalis	S	-	1.50	29	7.13	0.167	2103.333	11.102 ± 5.373	0.010	105.167	0.569 ± 0.269
Centropages abdominalis	M	-	2.00	48	11.79	0.500	2472.000	26.373 ± 8.540	0.075	370.800	3.956 ± 1.281
Chiridius sp.	L	-	2.00	8	1.97	0.333	9.000	0.042 ± 0.024	0.800	21.600	0.101 ± 0.057
Clione limacina	S	-	1.00	80	19.66	0.019	6980.315	19.331 ± 17.169	0.001	279.213	0.773 ± 0.687
Clione limacina	M	-	2.00	79	19.41	0.022	6.889	0.233 ± 0.036	0.019	6.200	0.204 ± 0.032
Clione limacina	L	-	2.00	169	41.52	0.001	4.966	0.091 ± 0.017	0.060	248.276	4.558 ± 0.871
Copepoda gen. sp.	S	-	1.50	4	0.98	22.277	744.485	2.183 ± 1.845	1.114	37.224	0.109 ± 0.092
Copepoda gen. sp.	S	copepodit	1.00	2	0.49	30.822	33.835	0.159 ± 0.112	6.164	6.767	0.032 ± 0.022
Copepoda gen. sp.	S	nauplius	1.00	277	68.06	0.667	2713.333	166.641 ± 16.402	0.010	40.700	2.309 ± 0.232
Copepoda gen. sp.	S	ova	1.00	32	7.86	1.654	3150.000	27.895 ± 12.724	0.007	12.600	0.112 ± 0.051
Cumacea gen. sp.	M	-	1.00	21	5.16	0.099	16.800	0.154 ± 0.053	0.058	9.828	0.090 ± 0.031
Cumacea gen. sp.	L	-	2.00	8	1.97	0.060	56.153	0.521 ± 0.255	1.113	1041.854	9.666 ± 4.737
Decapoda gen. sp.	M	larvae	2.00	3	0.74	0.294	3.731	0.012 ± 0.009	0.103	1.306	0.004 ± 0.003
Dimophyes arctica	M	-	1.00	24	5.90	0.100	10.000	0.083 ± 0.029	0.200	22.260	0.179 ± 0.065
Dimophyes arctica	L	-	1.00	79	19.41	0.011	2.204	0.075 ± 0.013	0.100	19.700	0.683 ± 0.118
Diphyes sp.	L	-	1.00	4	0.98	0.129	2.814	0.009 ± 0.007	0.900	19.700	0.064 ± 0.050
Echinodermata gen. sp.	S	larvae	1.00	19	4.67	1.000	53.333	0.516 ± 0.165	0.008	0.427	0.004 ± 0.001
Echinodermata gen. sp.	M	larvae	1.00	1	0.25	5.495	5.495	0.014 ± 0.014	0.989	0.989	0.002 ± 0.002
Eucalanus bungii	S	-	1.50	25	6.14	8.459	317.143	4.388 ± 1.374	0.736	22.200	0.352 ± 0.105

Species											
Eucalanus bungii	M	-	2.00	288	70.76	0.100	1184.600	28.694 ± 4.619	0.200	2369.200	57.388 ± 9.239
Eucalanus bungii	L	-	2.00	364	89.43	0.014	154.807	14.368 ± 1.147	0.100	1176.534	102.821 ± 8.217
Euphausia gen. sp.	L	furcilia	2.00	140	34.40	0.015	2648.200	15.981 ± 9.219	0.045	7944.600	47.855 ± 27.656
Euphausia pacifica	L	-	10.0	1	0.25	1.286	1.286	0.003 ± 0.003	45.000	45.000	0.111 ± 0.111
Euphausiacea gen. sp.	S	calyptopis	1.00	15	3.69	0.125	471.250	4.353 ± 1.633	0.010	37.700	0.348 ± 0.131
Euphausiacea gen. sp.	S	nauplius	1.00	28	6.88	0.827	792.500	8.643 ± 2.675	0.037	31.700	0.352 ± 0.108
Euphausiacea gen. sp.	S	ova	1.00	11	2.70	1.654	1113.333	7.085 ± 3.419	0.050	33.400	0.213 ± 0.103
Euphausiacea gen. sp.	M	calyptopis	2.00	65	15.97	0.020	108.522	1.290 ± 0.417	0.008	44.820	0.533 ± 0.172
Euphausiacea gen. sp.	M	furcilia	2.00	16	3.93	0.125	11.375	0.112 ± 0.044	0.225	20.475	0.202 ± 0.079
Euphausiacea gen. sp.	M	juvenis	2.00	23	5.65	0.333	186.916	1.251 ± 0.592	0.600	336.449	2.252 ± 1.065
Fritillaria sp.	S	-	1.00	26	6.39	0.769	294.393	3.457 ± 1.209	0.013	5.005	0.061 ± 0.021
Gaetanus simplex	L	-	2.00	5	1.23	0.099	1.203	0.008 ± 0.004	0.257	3.128	0.021 ± 0.011
Gaetanus sp.	M	-	2.00	1	0.25	0.149	0.149	0.000 ± 0.000	0.076	0.076	0.000 ± 0.000
Gaetanus sp.	L	-	2.00	12	2.95	0.006	0.907	0.010 ± 0.004	0.010	2.086	0.020 ± 0.008
Gaidius variabilis	M	-	2.00	2	0.49	3.038	5.000	0.020 ± 0.014	3.232	5.320	0.021 ± 0.015
Gammaridae gen. sp.	M	-	1.50	1	0.25	1.000	1.000	0.002 ± 0.002	0.500	0.500	0.001 ± 0.001
Gammaridae gen. sp.	L	-	2.00	29	7.13	0.018	114.171	0.773 ± 0.405	0.180	1141.710	7.729 ± 4.052
Globigerina sp.	S	-	1.00	95	23.34	1.103	1200.000	24.886 ± 5.049	0.009	9.600	0.199 ± 0.040
Heterorhabdus tanneri	L	-	2.00	10	2.46	0.016	0.260	0.002 ± 0.001	0.062	1.014	0.009 ± 0.004
Hyperia galba	L	-	3.00	2	0.49	0.050	0.078	0.000 ± 0.000	1.235	1.930	0.008 ± 0.006
Limacina helicina	S	-	1.00	158	38.82	0.667	13700.000	105.602 ± 38.869	0.010	205.500	1.584 ± 0.583
Limacina helicina	M	-	1.00	133	32.68	0.006	1509.000	16.402 ± 5.089	0.003	719.793	7.822 ± 2.428
Limacina helicina	L	-	1.00	146	35.87	0.005	37.140	0.439 ± 0.132	0.019	138.124	1.632 ± 0.492
Metridia pacifica	M	-	2.00	324	79.61	0.080	1151.479	42.820 ± 4.605	0.054	778.400	28.925 ± 3.113
Metridia pacifica	L	-	2.00	261	64.13	0.033	214.778	8.256 ± 1.122	0.030	193.300	7.366 ± 1.003
Metridia sp.	S	copepodit	1.50	228	56.02	0.250	3087.500	119.204 ± 13.359	0.010	120.413	4.677 ± 0.522
Metridia sp.	M	copepodit	2.00	108	26.54	0.989	724.638	28.293 ± 4.145	0.297	217.391	8.488 ± 1.243
Microcalanus pygmaeus	S	-	1.50	270	66.34	3.750	4164.286	108.785 ± 13.426	0.053	58.300	1.523 ± 0.188
Microsetella sp.	S	-	1.50	170	41.77	0.588	1111.765	24.474 ± 3.932	0.010	18.900	0.440 ± 0.067
Mysida gen.sp.	M	larvae	1.00	12	2.95	0.017	5.882	0.066 ± 0.026	0.003	1.000	0.011 ± 0.004
Mysida gen.sp.	L	-	2.00	12	2.95	0.097	1.143	0.009 ± 0.003	5.763	68.170	0.536 ± 0.206
Mysida gen.sp.	L	<10 mm	2.00	12	2.95	0.097	1.644	0.011 ± 0.005	0.224	3.804	0.026 ± 0.012
Mysida gen.sp.	L	10-20 mm	2.00	6	1.47	0.316	1.027	0.008 ± 0.004	6.059	19.664	0.148 ± 0.068
Neocalanus cristatus	M	-	2.00	9	2.21	0.125	27.500	0.152 ± 0.081	0.050	11.000	0.062 ± 0.033
Neocalanus cristatus	L	-	2.00	309	75.92	0.083	103.188	6.417 ± 0.645	0.800	1031.884	59.245 ± 5.916
Neocalanus plumchrus+flemingeri	M	-	2.00	133	32.68	0.143	282.857	6.016 ± 1.045	0.050	99.000	2.142 ± 0.369
Neocalanus plumchrus+flemingeri	L	-	2.00	380	93.37	0.040	340.440	35.653 ± 2.718	0.100	851.100	92.178 ± 6.977
Neocalanus sp.	S	copepodit	1.50	99	24.32	3.333	909.926	12.605 ± 3.155	0.123	33.667	0.466 ± 0.117
Neocalanus sp.	M	copepodit	2.00	78	19.16	0.197	1238.014	5.269 ± 3.125	0.069	434.543	1.849 ± 1.097
Oikopleura vanhoeffeni	S	-	1.00	23	5.65	0.652	158.696	2.072 ± 0.676	0.022	5.396	0.070 ± 0.023
Oikopleura vanhoeffeni	M	-	1.00	98	24.08	0.100	1394.444	17.494 ± 5.298	0.009	125.500	1.554 ± 0.475
Oikopleura vanhoeffeni	L	-	2.00	87	21.38	0.030	88.150	1.042 ± 0.312	0.060	176.300	2.083 ± 0.623
Oithona plumifera	S	-	1.50	1	0.25	13.636	13.636	0.034 ± 0.034	0.314	0.314	0.001 ± 0.001
Oithona similis	S	-	1.50	371	91.15	28.037	37642.855	1623.720 ± 133.514	0.421	527.000	23.202 ± 1.870

Ostracoda gen. sp.	S	-	1.00	15	3.69	1.031	97.403	0.625 ± 0.276	0.100	9.448	0.061 ± 0.027
Ostracoda gen. sp.	M	-	1.00	39	9.58	0.111	10.000	0.174 ± 0.039	0.046	5.000	0.075 ± 0.018
Ostracoda gen. sp.	L	-	1.00	79	19.41	0.005	1.290	0.046 ± 0.007	0.007	1.900	0.069 ± 0.011
Paguridae gen. sp.	L	larvae	2.00	54	13.27	0.014	8.034	0.069 ± 0.027	0.049	28.200	0.241 ± 0.096
Paraeuchaeta elongata	L	-	2.00	62	15.23	0.002	3.571	0.080 ± 0.017	0.010	15.000	0.334 ± 0.070
Parasagitta elegans	S	-	1.00	14	3.44	2.857	91.429	0.617 ± 0.254	0.200	6.400	0.043 ± 0.018
Parasagitta elegans	M	-	2.00	187	45.95	0.035	211.000	7.306 ± 1.099	0.006	42.200	1.434 ± 0.218
Parasagitta elegans	L	-	10.0	256	62.90	0.177	61.091	7.263 ± 0.493	3.900	1344.000	156.326 ± 10.612
Parasagitta elegans	L	<10 mm	2.00	78	19.16	0.200	27.820	0.673 ± 0.117	0.160	21.764	0.535 ± 0.092
Parasagitta elegans	L	10-20 mm	5.00	208	51.11	0.278	43.233	4.757 ± 0.375	1.500	217.711	24.221 ± 1.890
Parasagitta elegans	L	20-25 mm	10.0	174	42.75	0.444	36.207	1.827 ± 0.174	6.908	544.598	29.472 ± 2.759
Parasagitta elegans	L	25-30 mm	10.0	85	20.88	0.493	9.000	0.550 ± 0.067	14.532	265.440	17.625 ± 2.159
Parasagitta elegans	L	>30 mm	10.0	52	12.78	0.483	8.451	0.247 ± 0.045	22.589	483.084	13.621 ± 2.595
Pareuchaeta sp.	M	copepodit	2.00	22	5.41	0.029	10.714	0.063 ± 0.028	0.020	7.500	0.045 ± 0.020
Pleuromamma scutullata	L	-	2.00	3	0.74	0.097	0.200	0.001 ± 0.001	0.213	0.440	0.002 ± 0.001
Podon leuckartii	S	-	1.00	2	0.49	83.333	83.333	0.409 ± 0.290	2.250	2.250	0.011 ± 0.008
Polychaeta gen. sp.	S	larvae	1.00	64	15.72	0.827	7700.000	165.772 ± 34.990	0.022	183.167	4.517 ± 0.930
Polychaeta gen. sp.	M	larvae	1.00	61	14.99	0.033	41.739	0.524 ± 0.130	0.029	37.231	0.467 ± 0.116
Polychaeta gen. sp.	L	larvae	2.00	28	6.88	0.020	0.960	0.021 ± 0.005	0.030	1.440	0.031 ± 0.008
Primno macropa	M	-	1.50	2	0.49	1.758	3.500	0.013 ± 0.010	1.758	3.500	0.013 ± 0.010
Primno macropa	L	-	3.00	13	3.19	0.071	1.118	0.012 ± 0.004	1.200	19.000	0.205 ± 0.073
Primno macropa	L	<5 mm	2.00	2	0.49	0.143	0.257	0.001 ± 0.001	0.331	0.596	0.002 ± 0.002
Primno macropa	L	5-7 mm	3.00	1	0.25	0.148	0.148	0.000 ± 0.000	0.997	0.997	0.002 ± 0.002
Primno macropa	L	7-10 mm	3.00	4	0.98	0.049	0.556	0.004 ± 0.002	0.969	11.000	0.075 ± 0.042
Primno macropa	L	>10 mm	3.00	1	0.25	0.246	0.246	0.001 ± 0.001	9.882	9.882	0.024 ± 0.024
Pseudocalanus minutus	M	-	2.00	252	61.92	0.300	2580.000	71.824 ± 11.552	0.038	309.600	8.721 ± 1.391
Pseudocalanus newmani	S	-	1.50	138	33.91	1.111	1706.667	64.214 ± 9.085	0.044	68.267	2.569 ± 0.363
Pseudocalanus sp.	S	-	1.50	246	60.44	0.556	4952.381	241.595 ± 26.322	0.022	198.095	9.664 ± 1.053
Pseudocalanus sp.	M	-	2.00	138	33.91	0.833	1251.667	34.169 ± 6.312	0.075	112.650	3.075 ± 0.568
Racovitzanus antarcticus	M	-	2.00	26	6.39	0.214	38.000	0.216 ± 0.101	0.060	10.640	0.062 ± 0.029
Scolecithricella minor	S	-	1.50	59	14.50	0.125	45.000	1.407 ± 0.261	0.010	3.600	0.106 ± 0.020
Scolecithricella minor	M	-	2.00	138	33.91	0.063	29.375	1.475 ± 0.177	0.010	4.700	0.251 ± 0.029
Scolecithricella ovata	M	-	2.00	1	0.25	5.000	5.000	0.012 ± 0.012	1.500	1.500	0.004 ± 0.004
Tessarobrachion oculeatus	L	-	10.0	1	0.25	0.756	0.756	0.002 ± 0.002	34.000	34.000	0.084 ± 0.084
Themisto libellula	L	-	5.00	21	5.16	0.004	3.367	0.026 ± 0.010	0.300	252.500	1.944 ± 0.720
Themisto libellula	L	5-10 mm	3.00	50	12.29	0.145	10.833	0.197 ± 0.046	1.700	151.662	2.743 ± 0.647
Themisto libellula	L	10-20 mm	5.00	35	8.60	0.246	8.042	0.125 ± 0.033	25.680	820.284	12.726 ± 3.353
Themisto libellula	L	20-30 mm	5.00	7	1.72	0.145	1.614	0.013 ± 0.006	43.500	484.200	3.885 ± 1.726
Themisto pacifica	S	-	1.00	34	8.35	0.325	112.500	0.627 ± 0.300	0.045	15.525	0.087 ± 0.041
Themisto pacifica	M	-	2.00	183	44.96	0.120	40.200	1.642 ± 0.205	0.079	26.532	1.084 ± 0.135
Themisto pacifica	L	-	3.00	216	53.07	0.015	10.400	0.854 ± 0.074	0.200	127.286	10.825 ± 0.938
Themisto pacifica	L	<5 mm	2.00	165	40.54	0.033	8.453	0.586 ± 0.061	0.050	12.930	0.936 ± 0.097
Themisto pacifica	L	5-7 mm	3.00	63	15.48	0.146	9.091	0.151 ± 0.032	0.839	51.519	0.896 ± 0.183
Themisto pacifica	L	7-10 mm	3.00	18	4.42	0.047	0.870	0.013 ± 0.004	0.700	12.220	0.194 ± 0.055

Species	Type	Size									
Themisto pacifica	L	>10 mm	3.00	2	0.49	0.246	1.788	0.005 ± 0.004	7.304	44.704	0.128 ± 0.111
Thysanoessa inermis	L	-	10.0	95	23.34	0.011	32.923	0.829 ± 0.154	0.600	2140.000	53.226 ± 9.967
Thysanoessa inermis	L	<10 mm	3.00	17	4.18	0.098	9.467	0.090 ± 0.036	0.295	28.400	0.271 ± 0.108
Thysanoessa inermis	L	10-20 mm	5.00	32	7.86	0.056	4.324	0.077 ± 0.020	1.568	121.072	2.140 ± 0.546
Thysanoessa inermis	L	20-25 mm	10.0	20	4.91	0.578	7.389	0.141 ± 0.037	41.734	591.133	11.291 ± 2.940
Thysanoessa inspinata	L	-	5.00	6	1.47	0.131	1.637	0.010 ± 0.005	4.400	54.789	0.332 ± 0.173
Thysanoessa longipes	L	-	5.00	90	22.11	0.005	3.706	0.135 ± 0.023	0.400	315.000	11.222 ± 1.875
Thysanoessa longipes	L	<10 mm	3.00	60	14.74	0.015	7.175	0.102 ± 0.025	0.060	28.700	0.407 ± 0.098
Thysanoessa longipes	L	10-20 mm	5.00	41	10.07	0.056	4.861	0.083 ± 0.018	1.420	123.256	2.121 ± 0.471
Thysanoessa longipes	L	20-25 mm	10.0	10	2.46	0.493	13.990	0.074 ± 0.041	37.438	1063.265	5.589 ± 3.090
Thysanoessa longipes	L	>25 mm	10.0	9	2.21	0.235	1.449	0.013 ± 0.005	32.911	207.391	1.913 ± 0.721
Thysanoessa raschii	L	-	10.0	54	13.27	0.013	7.600	0.212 ± 0.041	0.900	532.000	15.509 ± 2.940
Thysanoessa raschii	L	<10 mm	3.00	34	8.35	0.040	25.275	0.222 ± 0.076	0.140	93.138	0.815 ± 0.280
Thysanoessa raschii	L	10-20 mm	5.00	29	7.13	0.262	7.190	0.092 ± 0.026	6.550	200.735	2.382 ± 0.683
Thysanoessa raschii	L	20-25 mm	10.0	22	5.41	0.575	15.309	0.133 ± 0.047	42.886	1178.776	9.876 ± 3.591
Tomopteris sp.	L	-	2.00	26	6.39	0.043	1.329	0.015 ± 0.005	0.430	13.290	0.150 ± 0.048
Tomopteris sp.	L	10 mm	2.00	8	1.97	0.048	0.150	0.001 ± 0.001	0.300	0.931	0.009 ± 0.004
Tomopteris sp.	L	20 mm	2.00	10	2.46	0.049	0.108	0.002 ± 0.001	0.850	2.332	0.036 ± 0.012
Triconia borealis	S	-	1.50	213	52.33	0.200	881.818	39.127 ± 4.500	0.007	29.100	1.245 ± 0.142
Amphipods								5.045 ± 0.557			43.507 ± 5.705
Copepods								2808.164 ± 141.035			480.361 ± 18.312
Cladocerans								0.409 ± 0.290			0.011 ± 0.008
Gelatinous (jellyfish. comb jellies. pelagic tunicates)								24.710 ± 5.486			31.082 ± 4.829
Pteropods								142.098 ± 42.796			16.574 ± 2.776
Cumaceans								0.675 ± 0.261			9.756 ± 4.737
Meroplankton (larvae of benthic animals)								311.017 ± 53.613			9.473 ± 1.128
Mysids								0.094 ± 0.027			0.722 ± 0.217
Protozoa								24.886 ± 5.049			0.199 ± 0.040
Other groups								0.018 ± 0.005			0.195 ± 0.050
Ostracods								0.845 ± 0.279			0.205 ± 0.034
Chaetognaths								23.240 ± 1.306			243.278 ± 11.630
Euphausiids								40.934 ± 10.347			169.043 ± 30.171
Entire zooplankton								3382.136 ± 157.358			1004.405 ± 38.317

All **Referances** are in the main text of the paper