**Bulletin 62**

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| УДК 621.311(571.66) DOI: 10.17217/2079-0333-2022-62-6-17  **ANALYSIS OF STRUCTURE OF GENERATING CAPACITY  AND ELECTRICITY DEMAND DYNAMICS IN THE ALEUTIAN ISOLATED POWER UNIT**  **OF THE KAMCHATKA TERRITORY**  Belov О.А.  Ensuring reliable and efficient electricity supply of remote energy isolated areas is an urgent task, since any failure in an isolated system leads to dangerous crisis phenomena and significant economic losses. The presented comprehensive assessment of the electric power industry state in the Aleutian isolated power unit makes it possible to predict the prospects for its development within the framework of the electric power complex of the Kamchatka Territory. The issues of optimizing the network infrastructure and generating capacities, ensuring long-term and medium-term demand for electric energy and capacity, creating stable and favorable conditions for attracting investments in the construction of electric power facilities of the Aleutian isolated power unit were considered. The current and prospective balances of electricity and capacity in the Aleutian isolated power unit based on the analysis of the energy structure of an isolated power unit and the electricity demand dynamics were calculated. The options for developing the electricity supply system of the Aleutian power unit were considered.  **Key words:** generating capacities, hydropower, electricity supply system, electric balance, electric power, energy tariff, power unit. |
| УДК 639.2:597.5 DOI: 10.17217/2079-0333-2022-62-18-35  **PACIFIC POLLOCK IS A PROMISING RAW MATERIAL**  **FOR RUSSIAN FISHERY INDUSTRY**  Efimova M.V., Efimov A.A., Мustafaeva V.M., Chmykhalov B.A.  The references about mass and chemical composition of Pacific pollock, its technological features, summarized in a table of advantages and disadvantages, were analyzed. The nutritional value of its individual organs and tissues was shown. The coefficient of nutritional significance of lipids was calculated. The requirements of regulatory documents to the quality of pollock and its safety according to parasitological indicators were analyzed. The existing and promising directions of using Pacific pollock as a raw material object for fishery industry were enumerated. The distribution schemes of products manufactured by different countries were developed. An overview of the ways of pollock processing into food products was made. The results of pollock production technologies that have been developed for several years and are currently being developed by the Food Production Technologies Chair of Kamchatka State Technical University were briefly presented. The conclusion about the high technological potential of Pacific pollock was made.  **Key words:** pollock, nutritional value, safety indicators, quality indicators, chemical composition. |
| УДК 582.272.4 DOI: 10.17217/2079-0333-2022-62-36-48  **LECTOTYPIFICATION OF THE NAMES OF *AGARUM* TAXA (LAMINARIALES, PHAEOPHYCEAE) DESCRIBED BY A.F. POSTELS AND F.I. RUPRECHT[[1]](#footnote-1)\***  Klochkova N.G., Klimova A.V., Klochkova T.A.  In this paper, we analyzed the history of the genus *Agarum*. In Kamchatka, the species included in this genus are currently identified as *A. clathratum* and *A. turneri*. Currently existing genotypic systematic data, results of our own molecular-phylogenetic research, comparative analysis of descriptions, drawings and synonyms of *Agarum* species provided in references published by different authors, as well as investigation of the herbarium specimens from BIN RAS (LE) collected by members of the expedition by F.B. Lutke and M.N. Stanyukovich (1826–1829) revealed that, due to a misunderstanding of the volume and specific characteristics of *A. clathratum* and *A. turneri*, their species names are currently being used erroneously. Thus, in accordance with the International Code of the Nomenclature of Algae, Fungi and Plants, it is proposed by us to use the name *А. clathratum* for algae with a wide flat midrib and large perforations, whereas algae with a narrow convex midrib and small perforations should be indicated as *A. pertusum*. Our taxonomic changes were based on the investigation of herbarium specimens from the BIN RAS (LE) labeled by F.I. Ruprecht, and also on comparison of rDNA sequences obtained by us and those downloaded from the NBCI database. We also typified *А. gmelinii*, *A. pertusum, А. turneri* described by A.F. Postels and F.I. Ruprecht.  **Key words:** molecular phylogeny, typification, *Agarum*, *А. clathratum*, *А. gmelinii*, *A. pertusum*, *А. turneri*,Laminariales. |
| УДК 593.93(265.51)"07-08.2008" DOI: 10.17217/2079-0333-2022-62-49-73  **STARfiSh (ECHINODERMATA: ASTEROIDEA) OF THE north-western part of the BERING SEA COLLECTED BY THE TINRO-CENTER EXPEDITION ON THE research vessel “TINRO” IN JULY – AUGUST 2008**  Smirnov A.V.1, Panina E.G.2, Stepanov V.G.2  The data on starfish found in the north-western part of the Bering Sea during trawl survey aboard the research vessel “TINRO” (TINRO-Center) on the depth 43–552 m in July – August 2008 are presented. 27 species of starfish belonging to 10 families and 6 orders were found. 24 of them were identified to specieslevel (two of them are questionable) and 3 – to the genus level. Three species such as *Solaster spectabilis*, *Hippasteria armata* and *Nearchaster* (*Nearchaster*) *pedicellaris pedicellaris* are discovered in the Bering Sea for the first time. *Pteraster tesselatus*, *Diplopterastrer multipes* and *Asterias microdiscus* species are recorded for the northwestern part of the Bering Sea for the first time. Data on the location of the collected species, brief remarks on their lifetime coloration, size and some morphological features are given. Life photographs for each species are shown.  **Key words:** the Bering Sea, species composition, starfish, distribution, Asteroidea. |
| УДК 639.2.053:597.3(265.53) DOI: 10.17217/2079-0333-2022-62-74-97  **BOTTOM AND NEAR-BOTTOM ICHTHIOCENE DOMINANT SPECIES  OF WESTERN KAMCHATKA SHELF: DISTRIBUTION AND BIOMASS**  Matveev A.A., Varkentin A.I.  This work continues studies devoted to the long-term dynamics of the Okhotsk Sea fish stocks state on the shelf near the western coast of Kamchatka. The estimates of the bottom and near-bottom fish species biomass based on the results of 8 scientific expeditions during summer period were given. The dominant species (by the biomass) of the study area were determined. Significant variability of their accounted biomass was shown. The distribution of mass ichthyocene representatives according to the average data was demonstrated.  **Key words:** biomass, bottom trawl surveys, Western Kamchatka, Western Kamchatka shelf, stock, the Sea of Okhotsk, distribution. |
| УДК 597.553.2:574.24 DOI: 10.17217/2079-0333-2022-62-98-116  **FEEDING LOCATION INFLUENCE ON THE HEAVY METAL CONTENT  IN PINK SALMON (*ONCORHYNCHUS GORBUSCHA*, SALMONIDAE)[[2]](#footnote-2)\***  Litvinenko A.V., Khristoforova N.K., Tsygankov V.Yu.  The microelement composition of the organs and tissues of the summer Japanese Sea pink salmon (*Oncorhynchus gorbuscha*) which returned to the shores of Sakhalin Island after sea feeding: to the Aniva Bay (pre-estuary zone of the Taranay River) and to the southwestern coast abeam Nevelsk in June-July 2019 was assessed. The fish were dissected by organs and tissues on Sakhalin, the samples were frozen and delivered to Vladivostok for chemical analysis. All elements were determined from acidic mineralizates according to GOST 26929-94 on a Shimadzu AA 6800 atomic absorption spectrophotometer in a flame (Zn, Ni, Cu, and Fe) and in a graphite cell (Pb, Cd). Confirming the results of previous studies, it was found that the content of microelements in the Japanese Sea pink salmon, indicating anthropogenic (Zn, Cu) and technogenic (Ni) impact on the environment, significantly exceeded that in fish from the Sea of Okhotsk. The number of microelements in the organs and tissues of the Sea of Japan pink salmon, indicating anthropogenic and technogenic influence during the feeding period (Zn, Cu and Ni) exceeded the corresponding indicators in the Sea of Okhotsk pink salmon by several times, for example, Ni – by 5.4, Zn – 8.8 times. The Sea of Okhotsk pink salmon twice crossed the impact geochemical and high-feeding Kuril-Kamchatka zone during its life cycle, accumulating in its organs and tissues an increased content of lead and cadmium, witnesses of underwater and surface volcanism, as well as upwellings. The content of Pb and Cd, witnesses of the natural impact situation affecting the salmon stocks of the Sea of Okhotsk, was several times higher in the organs and tissues of the Kuril and Sakhalin (from the southeastern coast) pink salmon.  **Key words:** geochemical provinces of the Pacific Ocean, waters near Kurils, Sea of Japan, Pacific salmon, pink salmon *Oncorhynchus gorbuscha*, heavy metals, mineral composition of body structures. |
| УДК 632.76:595.763.79 DOI: 10.17217/2079-0333-2022-62-117-125  **PHENOTYPIC DIVERSITY OF POTATO LADYBIRDPOPULATION**  Ermak M.V., Matsishina N.V., Fisenko P.V.  The 28-spotted potato ladybird *Henosepilachna vigintioctomaculata* is an endemic pest of field crops in the Russian Far East. The phenetic structure research of this phytophage population can help to monitor the processes occurring in ecosystems, to study the resilience to pesticides and to resistant varieties, as well as to make a significant contribution to the study of the endemic fauna of the Far East. The elytra pattern to study the polymorphism and structure of a potato ladybird population was analyzed. The size and shape of spots, the intensity of color, the position of spots on the elytra, the presence of connected spots were taken into account. As the result, nine phenoforms were identified. The phenoform A2 prevailed (47.81%). The phenoforms A1 and A6 were also frequently discovered. The phenoform A9 had the most seldom occurrence (1.82%). It was stated that morphotypes differ by the linear dimension of elytra spots. The form A2 was characterized by the largest spots. The size of the patterns varied from (104.98 ± 0.071) to (297.01 ± 0.065)µ. The form A1 had the smallest spots.  **Key words:** 28-spotted potato ladybird, morphotype, phenotype, frequency of occurrence. |

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2. \* The work was carried out with the support of the Russian Science Fund [↑](#footnote-ref-2)