|  |
| --- |
| УДК 621.431.74  **O.A. Belov**  **SAFETY ESTIMATION FOR OPERATION OF SHIP ENERGY INSTALLATIONS**  Safe operation of transport systems is a priority task in a number of areas, including the matters of ensuring environmental safety. Marine transport systems are based on intensive operation of vessels of various designs and for various purposes. The main source of energy in most such vessels is thermal engines, the final operating cycle of which is associated with the release of pollutants into the atmosphere. Thus, one of the sources of potential danger to the environment, in particular for the air basin is the ship's power plant. Consideration of the problem only from the point of view of reducing harmful emissions does not ensure the effectiveness of the system and its safety. The article substantiates the need for a comprehensive safety assessment, taking into account a wide range of possible alternatives in the management of pollution of the air basin by ships on the basis of a conceptual research model.  **Key words**: transport system, power installation, safety, technical operation, control algorithm.  *DOI: 10.17217/2079-0333-2017-42-6-10*  **Information about the author**  **Belov Oleg Aleksandrovich** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Candidate of Technical Sciences; Head of Electrical and Radio Equipment of Ships Chair;  boa-1@mail.ru |
| УДК 519.6:550.380  **O.V. Mandrikova, I.S. Solovev**  **INTERACTIVE SYSTEM FOR GEOMAGNETIC DATA ANALYSIS**  The paper suggests the methods for analyzing geomagnetic field variations, which are implemented in "Aurora" software system for complex analysis of geophysical parameters. The software system allows one to perform a detailed magnetic data analysis. The methods allow one to estimate the intensity of geomagnetic perturbations and to allocate increased geomagnetic activity periods. The software system is publicly available (http://aurorasa.ikir.ru:8580, http://www.ikir.ru:8280/lsaserver/MagneticPage.jsp).  This research was supported by the Russian Science Foundation (Project Nо. 14-11-00194)  **Key words**: wavelet-transform, magnetic storms, geomagnetic data.  *DOI: 10.17217/2079-0333-2017-42-11-18*  **Information about authors**  **Mandrikova Oksana Viktorovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Technical Sciences, Docent, Professor of Control Systems Chair; Institute of Cosmophysical Research and Radio Wave Propagation FEB RAS; 684034, Russia, Kamchatka region, Elizovsky district, Paratunka; Head of System Analysis Laboratory; oksanam1@mail.ru  **Solovev Igor Sergeevich** – Institute of Cosmophysical Research and Radio Wave Propagation FEB RAS; 684034, Elizovsky district, Paratunka; Candidate of Technical Sciences, Senior Researcher of System Analysis Laboratory; kamigsol@yandex.ru |
| УДК 681.5:621.3  **G.A. Pjukke**  **APPLICATION METHOD OF BROADBAND ELECTRIC SIGNALS FOR DIAGNOSING ELECTRIC CIRCUITS WITH REACTIVE COMPONENTS**  The proposed method of diagnosing of electric circuits containing components with resistive and imaginary impedance is based on using as testing action the broadband signal generated from Gaussian random process. Such approach simplifies calculations, and enables to exclude from consideration the analysis of the phase ratio carried out using harmonious signals. Magnitude estimation of test signal is based on the value of spectral density of mean square of random voltage or current. Estimation of the basic statistical characteristics of test signal is carried out on the record of looking of stationary random process of finite duration. For registration of signals the square voltmeter which indications do not depend on the form of researched signal is used. The concept of equivalent resistance of reactive component is introduced. Dealing with practical engineering tasks the considered technique allows to avoid complex analytical solutions, using the algorithm of consecutive variations of equivalent impedance of reactive components.  **Key words**: broadband signal, equivalent impedance, reactive component, random process, square voltmeter.  *DOI: 10.17217/2079-0333-2017-42-19-28*  **Information about the author**  **Pyukke Georgy Aleksandrovich –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Technical Sciences, Docent, Professor of Control Systems Chair; geopyukke@yandex.ru |
| УДК 001.891.53  **D.V. Shunkin, V.A. Shvetsov, V.V. Pakhomova, O.A. Belavina**  **USING THE RESEARCH RESULTS IN THE LABORATORIES**  **OF THE MINISTRY OF NATURAL RESOURCES OF THE RUSSIAN FEDERATION**  The demand for researches in control of composition of gold-bearing ores is estimated. The results of interlaboratory comparative researches demonstrate that satisfactory results of composition control of gold-bearing ores can be received with different methods. The rational for techniques of the enterprises to control the composition of gold-bearing ores is proved.  **Key words**: interlaboratory comparative researches, standard samples of composition of gold-bearing ores, analysis method, analysis technique, analysis result, certified value of precious metal content in a standard sample.  *DOI: 10.17217/2079-0333-2017-42-29-38*  **Information about the authors**  **Shunkin Dmitry Vladimirovich –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk- Kamchatskу; Postgraduate  **Shvetsov Vladimir Alekseevich** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Chemical Sciences, Docent, Professor of Electrical and Radio Equipment of Ships Chair  **Pakhomova Vera Vladimirovna** – JSC “Kamchatgeology”; 683016, Russia, Petropavlovsk-Kamchatskу; Head of Central Laboratory  **Belavina Olga Aleksandrovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Specialist in Technical and Scientific Information of Science and Innovation Department; oni@kamchatgtu.ru |
| УДК 664.144:582.272 M.V.  BlagonravovaTECHNOLOGY OF LOLLIPOP USING ALGAL DECOCTION The article presents the results of researches on the technology of lollipop using algal decoction. It is proved that introducing algal decoction in the considered proportions allows to obtain lollipop with high organoleptic characteristics and the quality corresponding to requirements of normative documents.  **Key words:** lollipop, laminaria algae, organoleptic characteristics, profilograms, algal decoction.  *DOI: 10.17217/2079-0333-2017-42-39-45*  **Information about the author**  **Blagonravova Majya Vladimirovna –** Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Candidate of Technical Sciences, Associate Professor of Food Production Technologies Chair; mblagonravova@mail.ru |
| УДК 664.6/.7  **V.A. Krokhalev**  **MODELLING THE FORMULA OF FOOD CONCENTRATE**  **WITH INSTANT BUCKWHEAT RECEIVED USING INFRARED POWER CONDUIT**  The article presents the approaches to modeling the food concentrates with instant buckwheat received using infrared power conduit. As part of the study standard methods of organoleptic and physical and chemical tests are used for analytical justification. Sensory and physical-chemical analysis of the used raw material – cereal and vegetable (auxiliary) is presented. On the basis of the matrix of ingredient matching the formula of the food concentrated mix "Buckwheat with Vegetables" is developed. It is established that the sample which ingredients are instant buckwheat, water, cauliflower, carrot, boiled dried pumpkin, dried garlic, blanched dried parsley, table salt has optimum organoleptic characteristics. Changing in criteria of quality parameters of the developed food concentrated mix with buckwheat during the storage is investigated; regulated organoleptic and physical-chemical quality parameters are created.    **Key words:** buckwheat, vegetable raw material, formula, modeling, quality parameters, amino-acid score, vertical dehydrator.  *DOI: 10.17217/2079-0333-2017-42-46-53*  **Information about the author**  **Krokhalev Victor Anatolevich** – Ural State University of Economics; 620219, Russia, Yekaterinburg; Candidate of Economic Sciences; Associate Professor of Food Technology Chair; victorkrohalev@gmail.com |
| УДК 563.9(265.52)"2014"  **E.A. Arkhipova, D.D. Danilin**  **taxa from the CLASS OPHIUROIDEA (TYPE ECHINODERMATA) on the SHELF AND UPPER SLOPE OF SOUTH-EASTern KAMCHATKA IN 2014**  This paper describes the results of the benthic survey, which was held on the shelf and upper slope of south-eastern Kamchatka, in the area located between Cape Lopatka and Cape Povorotniy in the summer of 2014. We present first analysis of the quantitative characteristics of class Ophiuroidea, including species composition, spatial distribution, settlement’s density and biomass of brittle stars on different substrates and depths in this area. A total of 56 biological probes were collecting using «Ocean-50» bottom sampler and 8 probes were collecting using a dredge. During our survey, we found 7 species of **Ophiuroidea, which belonged to 3 families. These species formed the greatest settlement’s density and biomass on the depths of 100–200 meters. We found three areas on the shelf of south-eastern Kamchatka where brittle stars were dominant components of zoobenthos and designated their geographical locations on the maps. Also, we provide description of species composition and structure of two** biocenotic **communities where brittle stars represented the dominant species.**  **Key words:** biomass, biocenosis, species composition, Ophiuroidea, shelf, spatial distribution, south-eastern Kamchatka  *DOI: 10.17217/2079-0333-2017-42-54-61*  **Information about the authors**  **Arkhipova Elena Anatolevna** **–** Kamchatka Research Institute of Fisheries and Oceanography (KamchatNIRO); 683000, Russia, Petropavlovsk-Kamchatskу; Candidate of Biological Sciences; Leading Researcher; kamarhipova@mail.ru  **Danilin Dmitry Diomidovich –** Kamchatka Branch of Pacific Geographical Institute FEB RAS; Petropavlovsk-Kamchatskу, Russia, 683000; Candidate of Biological Sciences; Researcher, danilinbiv@mail.ru |
| УДК 597.556.33(265.53)"2014"  **V.I. Karpenko, A.V. Vinogradskaya**  **CHARACTERISTICS OF SOME MORPHO-BIOLOGICAL INDEXES OF PACIFIC SANDFISH (*Trichodon trichodon*)IN THE SEA OF OKHOTSK IN 2014**  Biological indexes, age composition and food diet of Pacific sandfish in the Sea of Okhotsk in 2014 are presented. Data on eight meristic and 29 plastic signs of Pacific sandfish are resulted firstly, and variability of some of them is cited. The seven plastic signs have high variability.  **Key words**: Pacific sandfish, biological indexes, feeding, meristic and plastic signs, variability.  *DOI: 10.17217/2079-0333-2017-42-62-70*  **Information about the authors**  **Karpenko Vladimir Illarionovich** – Kamchatka State Technical University; 683603, Russia, Petropavlovsk-Kamchatsky; Doctor of Biological Sciences, Professor, Professor of Water Bioresources, Fisheries and Aquaculture Chair; karpenko\_vi@kamchatgtu.ru  **Vinogradskaya Anastasiya Viktorovna** – Kamchatka State Technical University; 683603, Russia, Petropavlovsk-Kamchatsky; Student |
| УДК 597.553.2(282.257.41)"2011"  **А.P. Lozovoy, V.I. Karpenko**  **SPECIFICS OF JUVENILE COHO SALMON SCALE STRUCTURE**  **IN THE LOWER PART OF THE RIVER KOL (WEST KAMCHATKA) IN 2011**  Juvenile coho salmon scale structure has been analyzed for the Kol river population. Formation and growth specific of sclerites on the scales of juvenile coho salmon with the body length of 15-64 mm was clarified. Comparative data on the juvenile body length of the other pacific salmon species at the time of leaving the spawning gravels and transition to external feeding are provided. The differences revealed can be species specific in particular regions of reproduction. The character of sclerite growth dynamics on coho salmon scale in the Kol is figured out.  **Key words:** juvenile coho salmon, biological characteristics, scale formation and structure, sclerite growth, growth rate variation.  *DOI: 10.17217/2079-0333-2017-42-71-76*  **Information about authors**  **Lozovoy Aleksey Petrovich** – Kamchatka Research Institute of Fisheries and Oceanography; 683000, Russia, Petropavlovsk-Kamchatsky; Junior Researcher, Postgraduate; kaktusovar@list.ru  **Karpenko Vladimir Illarionovich** – Kamchatka State Technical University; 683603, Russia, Petropavlovsk-Kamchatsky; Doctor of Biological Sciences, Professor, Professor of Water Bioresources, Fisheries and Aquaculture Chair; karpenko\_vi@kamchatgtu.ru |
| УДК 597.533.2(282.257.45)  **S.P. Pustovoit**  **Genetic diversity of even and odd generations of pink salmon *Oncorhynchus gorbuscha* (Walbaum, 1792) from the Ola River**  **(SEA of Okhotsk)**  We studied the genetic variability of two mtDNA genes in the pink salmon from the Ola River (Taui Bay, Sea of Okhotsk) in order to determine the current state of its biological diversity. Cytochrome *с*oxidase subunit I (COI) analysis showed that in the odd-year (2015) the genetic diversity of pink salmon was significantly higher than in 2016 (even-year). However, at the level of nucleotide frequencies in the cytochrome *b* gene, the genetic diversity was higher in the specimens collected in 2016 (even-year) compared to the odd-year (2015). Thus, our data indicated significant differences in the levels of genetic diversity between individuals from the odd and even generations of pink salmon from the Ola River. The most likely explanation might be the primary influence of natural selection. Small generations of pink salmon develop under the influence of selective factors during the spawning period and growth of juveniles during freshwater stage of their life cycle. Reduction in the number of generations leads to a decrease in the level of genetic diversity in the pink salmon populations.  **Key words:** pink salmon, genetic diversity, Sea of Okhotsk, cytochrome *с*oxidase subunit I (COI), cytochrome *b.*  *DOI: 10.17217/2079-0333-2017-42-77-83*  **Information about author**  **Pustovoit Sergey Pavlovich** – North-Eastern State University; 685000, Russia, Magadan; Candidate of Biological Sciences, Head of Biology and Chemistry Chair; kafbio@svgu.ru |
| УДК 336: 639.2/.3  **R.G. Bolotova, Y.A. Agunovich**  **ANALYTICAL SUPPORT FOR DECISIONS ON BORROWING**  **BY FISHERY ENTERPRISES**  The article presents the analysis results of financial indicators of the Kamchatka fishing enterprises. The analysis is aimed at assessing the rationale for the decisions on borrowing. Raising debt is connected with the risk of losing financial stability. Leverage application in grounding for the decisions on borrowing gives the possibility to determine the volume of borrowed funds for optimal capital structure of each enterprise. The study is based on the data of the Kamchatka fishing enterprises.  **Key words**: own and borrowed funds, financial leverage, capital structure, leverage ratio.  *DOI: 10.17217/2079-0333-2017-42-84-90*  **Information about the authors**  **Bolotova Regina Ganimatovna** – Kamchatka State Technical University; 683603, Russia, Petropavlovsk-Kamchatsky; Specialist in Information Resources; Undergraduate; regina\_bolotova@mail.ru  **Agunovich Yuliya Aleksandrovna** – Kamchatka State Technical University; 683603, Russia, Petropavlovsk-Kamchatsky; Candidate of Economic Sciences; Acting Head of Economics Chair; agunovich0@mail.ru |
| УДК 316.334.52(571.55) Y.V. Ganich, E.V. Klippenshtein, Y.S. MorozovaINVESTIGATING THE LEVEL OF SATISFACTION WITH SERVICE QUALITYPROVIDED BY THE NATURAL MONOPOLIES IN KAMCHATSKY KRAI The article poses the problem of dependence of population and economic entities on the activities of monopolies in Kamchatsky krai. The suppliers of electricity, heat, water and water drainage, as well as of telephone and Internet services, are resource-supplying organizations and they are also accepted as Kamchatka’s natural monopolies. The comparative analysis of estimations of satisfaction with natural monopolies’ services, resulting from a sociological survey, is presented in the article. The causes of ambiguous attitude of the residents and economic agents to the natural monopolies’ services are brought to light. Key words: natural monopolies, public goods, satisfaction with service quality, sociological studies, natural monopolies’ services. *DOI: 10.17217/2079-0333-2017-42-91-95*  **Information about the authors**  **Ganich Yana Viktorovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatsky; Candidate of Economic Sciences, Docent, Head of Management Chair; ganich.kam@mail.ru  **Klippenstein Elena Valerievna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatsky; Candidate of Sociological Sciences, Docent, Associate Professor of Management Chair; evklipp@mail.ru  **Morozova Yuliya Sergeyevna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatsky; Candidate of Economic Sciences, Docent, Associate Professor of Management Chair; morozova\_u@mail.ru |
| УДК 332.1(571.6)  **I.V. Levskaya, А.А. Alferov**  **FEATURES AND PROBLEMS OF SUSTAINABLE DEVELOPMENT OF REGIONAL BUSINESS SYSTEMS IN THE FAR EAST**  This article considers the factors of forming the regional business systems. Dynamics of indicators of business activity in the regions of the Far East is studied. Key issues for enterprise development in the Russian Far East are identified. Impact of migration population loss on sustainability performance of business system in the Far East is justified.  **Key words:** regional entrepreneurial system, factors of sustainable development of regional business systems, problems of enterprise development, migration.  *DOI: 10.17217/2079-0333-2017-42-96-106*  **Information about the authors**  **Levskaya Ирина Владимировна** – Kamchatka State Technical University; 683003, Petropavlovsk-Kamchatsky, Candidate of Economic Sciences; Associate Professor of Economics Chair; Shainaira@rambler.ru  **Alferov Александр Александрович** – State Technical University; 683003, Petropavlovsk-Kamchatsky; Postgraduate; Aalferov@list.ru |
| УДК 339.92: 639.2/.3[(471+571)+(5+265-192.2]  **G.A. Tokareva**  **PROBLEMS AND PROSPECTS OF RUSSIA'S COOPERATION**  **WITH COUNTRIES OF ASIA-PACIFIC REGION IN THE FISHERY INDUSTRY**  The study examines conditions, principles and ways of organizing cooperation between the Russian Federation and the countries of the Asia-Pacific region in the fishing industry. The factors of the external environment affecting the process of cooperation are analyzed, priority areas for cooperation are outlined and ways of improving mutually beneficial economic contacts between Russia and key partners in the Asia-Pacific region are suggested. The main attention is given to the possibility of productive social and economic interaction of the Far Eastern region of the Russian Federation with a number of economically developed countries of the Asia-Pacific region in the profile shipbuilding and fish processing industry. Prospects for improving the transport and logistics system of the region are considered. A number of managerial decisions to regulate the processes in the fishing industry are proposed.  **Key words:** cooperation, Asia-Pacific region, transport and logistics system, shipbuilding, fishing and fish processing industries.  *DOI: 10.17217/2079-0333-2017-42-107-113*  **Information about the author**  **Tokareva Galina Albertovna** – Kamchatka State Technical University; 683003, Russia, Petropavlovsk-Kamchatskу; Doctor of Philological Sciences, Associate Professor, Professor of History and Philosophy Chair; Petropavlovsk-Kamchatskу Branch of Russian Presidential Academy of National Economy and Public Administration; 683003, Russia, Petropavlovsk-Kamchatskу; Professor of Economic, Social and Human Sciences Chair; [tga41@yandex.ru](mailto:tga41@yandex.ru) |