**SECTION I. ENGINEERING SCIENCES AND INFORMATION SYSTEMS**

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**BASES OF CHECKPOINTS SELECTION TECHNIQUE TO MEASURE PROTECTIVE   
POTENTIAL OF VESSELS STEEL HULL**

Checkpoints selection technique to measure protective potential of vessels steel hull was introduced. The application of this method allows to reveal the most corrosive places in the hull plating and to decline monitoring labour-intensiveness of vessel hull protection from corrosion.

**Key words:** vessel hull corrosion, electrochemical protection of vessel hull from corrosion, protection, protective potential measurement of vessel hull.

УДК 519.87:625.512

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**DEVELOPMENT OF SUBSYSTEM SIMULATION   
MODEL «RESISTANCE MOMENT OFSINGLE-PISTON COMPRESSOR»**

Mathematical expressions and calculation sequence of single-piston compressor’s resistance moment are introduced. Based on the mathematical subsystem’s model “resistance moment of single-piston compressor” we analyzed changes of resistance moment in the function of rotation angle of drive motor shaft, analyzed compressor’s design features and conditions of its functioning. We verified simulation results while working in the open air for compressor ХКВ-6 of a small refrigerating plant.

**Key words:** single-piston compressor, moment of resistance, rotation angle, simulation.

# УДК 621.313-83

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**CONTROL ACTIONS-IMPACT EVALUATION ON MECHANICAL CHARACTERISTICS   
OF VALVE-INDUCTOR ELECTRIC DRIVE**

Impact analysis of phase making angle, voltage and current limit settings on the mechanical characteristicsbehavior, current waveform and moment pulsation level of valve-inductor motor was carried out on the basis of the authors' valve-inductor electric drive model. As a result of research we proved control algorithms simultaneously affecting commutating angles, supply voltage and current limit level depending on the motor’s current speed are effective in terms of reducing moment pulsation level at low speeds.

**Key words:** valve-inductor electric drive, commutating angles, mechanical characteristics, current limit setting, simulation.

УДК 519.7+550.3

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**MODELING AND ANALYSIS OF COMPLEX TIME SERIES**

In the paper we suggest algorithms for identification of complex time series models based on combining wavelets with a class of autoregressive-integrated moving average models, and neural networks. The algorithms allow us to study in detail the structure of time series and to extract characteristic components. During the course of modeling and error estimates the algorithms allow us to detect anomalies caused by changes in the structure of time series.

The application of the proposed techniques for modeling of the ionospheric critical frequency time series has shown their effectiveness and made it possible to detect anomalies during the periods of ionospheric disturbances. Approximations of the ionospheric parameter time variation were obtained for the regions located in Kamchatka and Magadan (data were registered by the Institute of Cosmophysical Research and Radio Wave Propagation of the Far-Eastern Branch of Russian Academy of Science (IKIR FEB RAS)). The comparison of detected anomalies with geomagnetic data and the seismic catalogue data for Kamchatka Peninsula has made it possible to suggest that anomaly changes in the ionosphere in the monitored regions may be due to increased solar activity and may also occur during the periods of increased seismic activity in Kamchatka.

**Key words:** wavelet transform, an autoregressive-integrated moving average model, a neural network, the ionospheric critical frequency, anomalies.

УДК 004.931:632.914

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**ALGORITHMS FOR DIAGNOSIS OF PLANT DISEASES ACCORDING   
TO THE LEAVES IMAGES**

The problem of diagnosis of agricultural plants diseases is considered. Initial information for determining phytosanitary condition of cultivated plant is leaves’ images. To solve the problem, a model of diagnosis algorithms based on the potentials’ principle is proposed. The idea of the suggested algorithms is in forming a set of preferable signs and making diagnostic decisions on the base of these signs juxtaposition. The main stages of the model of diagnosis algorithms are presented. The performance of the proposed model in solving the problem of wheat diseases diagnosis according to the leaves images is shown.

**Key words:** diagnosis algorithms, base fragments of the images, diagnostic features, preferred features.

**SECTION II. ECOLOGY, BIOLOGICAL RESOURCES AND THEIR EXPLOITATION**

УДК [664.951.037.5:639.211]:546.264-31

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**STUDY OF CARBON DIOXIDE INFLUENCE   
ON LIPIDS STABILITY DURING SALMON FROZEN MINCE STORAGE**

Description of oxidative and hydrolytic fish lipids and frozen product spoilage processes is given. Study results of peroxide number and acid number of frozen minced salmon lipids during cold storage, depending on the method of processing samples with carbon dioxide are stated. We demonstrated positive effect of volumetric processing of minced fish with carbon dioxide and subsequent glazing with carbon dioxide solution on the frozen product quality.

**Key words:** frozen minced fish, storage, oxidation, hydrolysis, carbon dioxide, peroxide number.

УДК 664.951.2

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**CLASSIFICATION SPECIFICATION OF FISH SALTING METHODS**

The given article deals with review of modern fish salting technologies. We described production flow sheet of mildly salted salmon products made with dry low-temperature salting. The expanded classification of fish salting methods is substantiated in accordance with modern technological techniques. The offered classification is of interest to developers of salty fish production technologies.

**Key words:** the salting, maturing, classification of salting methods, an intensification of salting, biochemical maturing.

УДК 664.955.2:664.44

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**QUALITY RESEARCH OF SALMON CAVIAR MADE WITH ADDING PHOSPHATES**

Description of salmon caviar spoilage types is given in the article. Research results of organoleptic and microbiological indexes of caviar samples made with preservatives, without preservatives and with phosphates are introduced. Caviar quality conservation with preservatives and phosphates during experiment period is stated in the article. We drew a conclusion about possibility of phosphates application as preservatives for salmon caviar.

**Key words:** salmon caviar, spoilage, phosphates, organoleptic indexes, microbiological indexes, conservation.

УДК 582.272.46(571.66)

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**LAMINARIA ALGAE OF EASTERN KAMCHATKA AND WESTERN PART   
OF THE BERING SEA. HISTORY AND AREA OF RESEARCH, NEW GOALS**

In the given article we review the research results of laminaria algae of eastern Kamchatka and western part of the Bering Sea obtained from 1840 till 1997 and from 1998 until now, having analyzed more than 250 scientific algological and hydrobiological publications. It was shown that last century researches were defined as algofloristic and algocenotic and represented Laminaria species structure, ecology and their distribution in shore. Nowadays the publications including data of phenology, reproduction processes, population biology study   
(46% from analyzed publications) composed the considerable part of research, containing the information about regional Laminaria alga. The most important tasks of researches are the study of seasonal chemical composition changes, sporogenes processes, laboratory cultivation for microscopic gametophytes study.

**Key words:** Laminariales, developmental biology, reproduction, status of observation, eastern Kamchatka, Bering Sea.

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**PECULIARITIES OF ECOLOGICAL AND GEOGRAPHICAL VARIABILITY   
OF LAMELLAR RED ALGAE OF KAMCHATKA COASTAL WATERS**

Peculiarities of ecological and geographical variability of 14 lamellar red algae of Kamchatka coastal waters are described in the article. Most of them belong to stenobiontic species which endure changes of environmental conditions badly. Each of them has its own eco-cenoticoptimum. The data used in the article indicate that ecological factors influence morphological and anatomical structure of lamellar red algae, thus proving their geographical variability.

**Key words:** red algae, lamellar red algae, Kamchatka coastal waters, characteristics of ecology, geographical variability.

**SECTION III. ECONOMICS AND SOCIAL DEVELOPMENT**

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**FORMATION OF LOGISTIC- ORIENTED INTRA-FIRM CONTROL MECHANISM   
OF FISHERY BUSINESS-STRUCTURES**

This article deals with elaboration and realization system of logistic provision strategy of fishery business- structures competitiveness.

**Key words:** strategy, fishery business- structures, environment, risks, Kamchatka region.

УДК 658.5:639.2/.3

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**PLANNING PROCEDURE OF FISHERY ENTERPRISES PRODUCTION ACTIVITY**

The procedure described is based on the production schedule development taking into account manufacturing capacity, market capacity, effectual demand of population and demand elasticity coefficient.

**Key words:** planning principles, production plan, manufacturing program, production capacity, enterprise potential, effective demand, sales program.

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**ASSESSMENT OF WAREHOUSING LOGISTICS AT FISHING ENTERPRISES**

This article deals with the issues of performance evaluation of warehousing logistics operation at fishing industry of Kamchatka region. Warehousing logistics problems for domestic regional enterprises become very important due to their remoteness from products consumption places and peculiarities of fishery raw-material base. Calculation of key parameters of company’s warehouses operation is done and conclusions about the necessity to expand the storage capacity are drawn.

**Key words:** warehousing logistics, warehouse, supply chain, fishing industry, material flow, storage warehousing.

УДК 35.08

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**THE HUMAN CAPITAL INVESTMENT MANAGEMENT IN STATE CIVIL SERVICE**

# The article deals with the problem of human capital investment management in state civil service in view of the specific character of state and municipal management. Specific features of human capital important for state civil service are marked out. The structure of human capital of civil servant is precised. Author examines principles of investment in human capital of civil service, and points out the problem of investment risk’s management. Building of civil service staff-reserve is treated as an investment in human capital of society in the context of innovation changes in state manpower policy. Special attention is paid to the investment in civil servant’s education. Special educational technologies for staff reserve training based on integrative activity of local administration and educational institutions are offered.

**Key words:** human capital, state civil service, [staff reserve](http://vestnik.uapa.ru/en/keywords/2725/), [competence](http://vestnik.uapa.ru/en/keywords/2780/), investment, integration, educational technologies.

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**TOLERANCE TO UNCERTAINTY AS IMAGE FORMING FACTOR   
OF PERSONALITY WORLD**

Theoretical analysis of interrelation problem of tolerance categories to uncertainty and personality’s world image was carried out. The author describes a number of scientific approaches to the study of tolerance and personality’s world image.Logic, results of empirical study made in 2014, world image peculiarities of respondents tolerant and intolerant to uncertainty are stated in the present article.

**Key words:** tolerance to uncertainty, intolerance, the image of the world, stress, frustration, conceptions.