PROBLEMS OF FISHERIES

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CONTENTS

ICHTYOPLANKTON IN THE ESTUARY OF THE SUKHODOL RIVER (USSURI BAY, SEA OF JAPAN)

© 2013 y. Y.V. Fedorets
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Ichthyoplankton estuary of the Sukhodol River represented by 25 species belonging to 9 families, of which 5 species are harvested. Dominated by fish larvae from the family Cyprinidae and Gobiidae. Maximum number of larvae recorded in the summer periods, and the minimum - in spring and autumn. In its zoogeographical characteristics there dominate species of the lowborealnye complexes (17 species).
Key words: eggs, larvae, fishes, species, Sukhodol River, ichtyoplankton.

INTRODUCTION OF THE RED KING CRAB INTO THE BARENTS SEA AND ITS IMPACT ON THE ECOSYSTEM (A REVIEW). 2. COMPETITION WITH NATIVE SPECIES

© 2013 y. A.G. Dvoretsky
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Analysis of consequences caused by the introduction of the red king crab into the Barents Sea is continued in this paper. Different examples of crab competition with native species are discussed. Food competition is possible with a number of commercially important fishes and crustaceans. A reduced abundance of the native lithodid crab *Lithodes maja* playing the same role in the ecosystem and having similar diet is apparently associated with competition between two crab species.
Key words: red king crab, Barents Sea, competition.

COMPARATIVE ANALYSIS OF WEIGHT-DIMENSIONS RELATIONS OF THREE COMMERCIAL MYTILID'S SPECIES (BIVALVIA) FROM THE SEA OF JAPAN

© 2013 y. E.E. Vekhova
Zhirmunsky Institute of Marine Biology RAS, Vladivostok

The peculiarities of change of relationships between the dimension and the different parameters of weight in three mytilid's species from Vostok Bay, the sea of Japan were examined. The age differences of rates of weight growth of the mussels underlie in the ontogenetic and interspecific differences of the

body weight. The differences are discussed from the standpoint of functional morphology and relatively the spatial distribution patterns of mollusks in coastal areas of the sea.
Key words: mytilids, *Mytilus coruscus, Modiolus modiolus, Crenomytilus grayanus,* Vostok bay, shell length, body weight, age.

DISTRIBUTION AND THE STOCK OF ICELAND SCALLOP *(CHLAMYS ISLANDICA)* IN THE LOWER SUB LITTORAL OF THE KOLA PENINSULA COSTAL ZONE (THE BARENTS SEA)

© 2013 y. P.N. Zolotarev
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Survey targeted of the Iceland scallop was carried out in 2010 at depth ranging from 40 m to 100 m in the coastal waters of the Kola Peninsula. The scallop beds were found in Varangerfjord and the area between the Seven Islands archipelago and the Cape Svyatoy Nos Bay. The total biomass of Iceland scallop over the survey area was estimated to be about 46 000 tons. Scallops from 10 mm to 24 mm shell height prevailed in catches in the Vrangerfjord while large scallops from 70 mm to 85 mm dominated in catches in the eastern parts of the survey area. Near 20% of all scallops in the area around the Seven Islands archipelago had indications of a fungal infection.
Key words: Iceland scallop, the Barents Sea, distribution, stock, size composition, fungal infection.

CURRENT DATA ON STURGEON POPULATION STATUS ON THE BORDER OF THE MIDDLE AND LOWER AMUR

© 2013 y. V. N. Koshelev, V.Yu. Kolobov, A. P. Shmigirilov
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Sturgeon population status on the border of the middle and lower Amur was described. Data on a distribution of both sturgeon species in the studied area was given. We marked a significant decrease of amur sturgeon and kaluga catch sizes in comparison with data of 1963-1970. Size, sex and age composition was specified. It was revealed that juvenile species prevailed in catches.
Key words: kaluga, amur sturgeon, the Amur, juvenile, distribution.

NUTRITION OF VOLGA ZANDER (*SANDER VOLGENSIS*) IN THE RYBINSKOE WATER RESERVOIR

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For the first time the food structure of mature Volga zander was investigated in Rybinskoe water reservoir during 1965-2008. It was established that this reservoir it fed only on fish. Only 2 kinds of fish − a perch and a ruff were the main diet component (74-98,2 %) of Volga zander unlike the "kind-companion" of a pike perch for which the wide spectrum of food was characteristic.
Key words: nutrition, Volga zander, pike perch, Rybinskoe water reservoir.

PACIFIC COD IN THE NORTHWESTERN PART OF THE OKHOTSK SEA

© 2013 y. V. P. Ovsyannikov, A.Yu. Nemchenko, Yu.V. Sidyakov
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Based on the results obtained during bottom trawl surveys conducted in the northwestern part of the Okhotsk Sea in August-September 2000 and 2009, we present data on biology and ecology of cod in the Territorial Sea and out of its boundaries. On the basis of these materials a comprehensive characteristic

of this species in the studied area is given.
Key words: pacific cod, Okhotsk Sea, distribution, size, age, feeding.

DYNAMICS OF STOCKS WALLEYE POLLOCK

© 2013 y. L.M. Zverkova
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Results of the analysis of dynamics stocks of Walleye pollock *Theragra chalcogramma* are presented. Substantial growth of a biomass of fish on all area has occurred in the middle of 70-80 years of the XX-th century. The available statistics catches and other indirect data testifies that the previous period high biomass of this species was in the middle of 30-40 of the XX-th century. The current state is characterized by a stock rate of a pollock below mean annual on the basic part area. On a long-term time scale of high abundance and biomass pollock reaches at approach of the period of strengthening of activity of Aleutian Low.
Key words: Walleye pollock, stocks, dynamics, Okhotsk, Bering, Japan Seas, Aleutian Low.

ASSESSMENT OF THE MAGNITUDE OF POACHING CATCH OF THE SIBERIAN STERLET – ACIPENSER RUTENUS MARSIGLII BRANDT IN THE AVERAGE FLOW OF THE IRTYSH RIVER

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The data on the state of stocks and the value of the catch of the sterlet in the Irtysh river within the limits of Omsk region are contains. The structure of the population of sterlet are considered. The algorithms for calculation of volume of poaching catch sterlet in the Irtysh river are provided. The principles of the further development of the fishery sterlet are considered.
Key words: Irtysh river; sterlet, population structure, poaching, algorithms, fishing reserves.

COMPARATIVE ANALYSIS FOR GENETIC AND MORPHOMET-RIC VARIABILITY OF HATCHERY JUVENILES AND SPAWNERS OF STELLATE STURGEONS OF NORTH CASPIAN

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Size of adult male and fecundity of adult female of stellate sturgeon positively correlates with the genotype homozygosity of the most frequent allele of *PGM-1** locus. Ural sturgeon demonstrate a greater fraction of such spawners in comparison with Volga sturgeon, whose reproduction is affected by hatcheries. Rearing fingerlings in ponds with low-density planting increases survival and growth rate of juveniles with the genotypes dominant in natural spawning. It may contribute to the growth of population size.
*Key words***:** hatchery, stellate sturgeon, genetic and morphometric variability.

RESULTS OF TESTING THE DYNAMICS OF FISH CATCH BY BEAM TRAWL IN PETER THE GREAT BAY

© 2013 y. A.N. Vdovin
Pacific Scientific Research Fisheries Center, Vladivostok

Variations of the beam trawl fish catches are investigated for seven grounds in Peter the Great Bay (Japan Sea). The catches dynamics and dispersion were not species-specific, but depended on ecological features of fish species (either near-bottom or pelagic-bottom mode of life) and their abundance and catch frequency. Other factors like migration activity and aggregation density could be essential, as well.
Key words: beam trawl, abundance, catch frequency, catch variability, migration activity.

PARASITIC FAUNA OF PACIFIC HERRING IN THE NORTHERN OKHOTSK SEA

© 2013 y. N.L. Aseeva, Z.I. Motora, S.V. Loboda
Pacific Scientific Research Fisheries Center, Vladivostok

Parasitic fauna of pacific herring is investigated on the samples collected in the northern Okhotsk Sea in 2002-2008, 18 species of parasites are founded. Significant difference is revealed for parasitic infection in the northwestern and northeastern parts of the Sea that confirms the conception on two populations of herring in the northern Okhotsk Sea. The areas with the highest infestation are revealed, in particular for *Anisakis simplex l.*, dangerous for human health.
Key words: parasitic fauna, pacific herring, infection, ecosystem.

THE FISHING INDUSTRY OF THE MURMANSK REGION: THE PRESENT CONDITION AND DEVELOPMENT PROSPECTS

© 2013 y. A.M. Vasiliev
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There are analyzed the main results of the fishing complex performance in the Murmansk region in 2008-2010 (after the decisions of the Federal authorities improved conditions of the fishing industry functioning): catching fish and sea products, manufacture of fish products, export and deliveries of fish from the sea abroad, unloading of fish in Murmansk, condition of the fishing fleet. On the basis of studies of the domestic and foreign sea fishing there were substantiated proposals directed to increasing efficiency of the fishing industry in the Murmansk region and accelerate the upgrade fishing fleet by quota holders.
Key words: sea fishing, the Murmansk region, analysis, substantiation, prospects.

THE INTERNATIONAL RELATIONS AND THE RUSSIAN RESEARCHES IN THE FIELD OF MARINE FISHERIES IN THE EARLY PERIOD PART 1. EUROPEAN SEAS

© 2013 y. A.I. Glubokov, N.R. Popova
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We consider the Russian international relations in the field of marine fisheries from the Middle Ages to the first quarter of the XX century in the Black, Azov, Caspian, Barents and Baltic Seas. The survey includes little-known sources, which allows to characterize the formation of the Russian international marine fisheries interactions.
Key words: history of the international fisheries, marine fisheries law, international fisheries management research.

APPLICATION OF AERIAL PHOTOGRAPHY IN THE SEAWEED RESOURCE RESEARCH OF THE BLACK SEA COAST WITHIN KRASNODAR REGION

© 2013 y. O.Y. Vilkova
Russian Federal Research Institute of Fisheries & Oceanography, Moscow

Based on interpretation of aerial photographs of the Black Sea nearshore zone within the Russian Federation it was established that the total area of the bottom covered with seaweed is about 43 km2; the area of thickets with commercial stock within the high productivity area between Capes Anapa and Idokopas within a depth of 5 m is 17,6 km2. Almost all commercial stock of Cystoseira – 35 thousand metric tons is concentrated within this area. That's value should be taken for estimation of the possible *Cystoseira* catch.
Key words: aerial photography interpretation, the Black Sea, macrophytes, Cystoseira, stock.

PRE-SPAWNING COHO SALMON *ONCORHYNCHUS KISUTCH* OF THE DRANKAZYMNIK RIVER SYSTEM (KARAGINSKY BAY, NE KAMCHATKA)

© 2013 y. A.A. Yarzhombek

Russian Federal Research Institute of Fisheries and Oceanography, Moscow

Analysis of coho salmon catch in the estuary of the Dranka-Zimnik river system in august 2001: body size and mass rows, dynamcs of gonad-indexes.
On the basis of the scale-analysis, the formation of age structure of the spawning school discussed.
Key words: coho salmon, estuary, length, age, growth, scale.

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CURRENT STATE OF ZEISKO-BUREINSKY POPULATIONS OF KALUGA AND AMUR STURGEON

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On the basis of research and literary data the current state of Zeisko-Bureinsky populations of kaluga *Acipenser dauricus* and amur sturgeon *Acipenser schrenckii* is described. It is shown that these populations have an extremely low abundance because of overfishing. The following measures are suggested to increase these species abundance: to reduce kaluga and amur sturgeon catches in the Middle and Upper Amur river and to build a new hatchery in Blagoveshchensk city.

Key words: kaluga, amur sturgeon, Zeisko-Bureinsky poations, overfishing.

THE SIZE-AGE COMPOSITION AND DYNAMICS OF ABUNDANCE OF THREADED SCULPIN GYMNOCANTHUS PISTILLIGER (COTTIDAE) IN PETER THE GREAT BAY (SEA OF JAPAN)

© 2013 y. V.V. Panchenko
Pacific Research Fisheries Center, Vladivostok

According to trawling surveys of 1991-2011, it is revealed that the threaded sculpin abundance's variations have poorly expressed cyclic character. The highest level of the stock was observed in the beginning of 90th years. Last years the species is on the abundance reduction. Trade mortality shouldn't exceed 30 % of the commercial stock.

Key words: threaded sculpin, size, age, dynamics, abundance, stock, Peter the Great bay.

THE BERING SEA POLLOCK (THERAGRA CHALCOGRAMMA) STOCK ASSESSMENT, AND IT'S FISHERIES IN THE NORTHERN BERING SEA IN EARLY 2010-S.

© 2013 y. M.A. Stepanenko, E.V.Gritsay
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Pollock biomass and abundance in the Bering Sea recovered to an average levelin 2010 as result of incoming of some abundant year classes – in 2006, 2008 and 2009. Biomass estimated in 6,2 mln. t, and abundance – in $18.35x10^9$ in 2010, in comparison with 2009 it's higher on 87. 8,3% and 42,4% consequently. Distribution of postspawning and immature pollock in summer-autumn period into northwestern Bering Sea and Russian EEZ increased in 2010-2011.

Key words: pollock, Bering Sea, abundance, biomass, stock assessment, seasonal migrations, recruitment, fisheries.

VARIATIONS OF REPRODUCTION EFFICIENCY OF PINK SALMON *ONCORHYNCHUS GORBUSCHA* AND CHUM SALMON *ONCORHINCHUS KETA* AT SPAWNING GROUNDS OF SAKHALIN ISLAND RIVERS

© 2013 y. A.A. Zhivoglyadov, A.A. Antonov, V.A. Rudnev, Kim Khe Yun
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The results of studying the efficiency of reproduction of pink salmon *Oncorhynchus gorbuscha* and chum salmon *Oncorhynchus keta* in the Southern Sakhalin in 2007-2011 are represented. Statistically authentic distinctions in efficiency of pink salmon and chum salmon reproduction on spawning grounds of different channel zones are revealed. It is shown that the lowest indicators of embryonic stages survival rate are dated for spawning areas of a flat rivers part.

Key words: pink salmon, chum salmon, Southern Sakhalin, efficiency of reproduction, salmon river, channel zones.

FISHERY OF *LYCODES SOLDATOVI* (ZOARCIDAE) IN THE SEA OF OKHOTSK IN 2000-2010

© 2013 y. O.Z. Badaev
Pacific Ocean scientific research fishery center, Vladivostok

In the Okhotsk Sea *Lycodes soldatovi* produced as by-catch in different types of fishing. We consider the actual development of the fishery of this species. On the example of Greenland halibut longline fishing in the Sea of Okhotsk shows the efficiency of the fishery and the possible ways of rationalizing.

Key words: fishing efficiency, eelpout Soldatov, bycatch, discards, bottom longline.

ON THE FUNCTIONAL STATE OF BLACK SEA TURBOT *SCOPHTHALMUS MAEOTICUS MAEOTICUS* DURING THE SPAWNING PERIOD OF 2009-2010

© 2013 y. N.E. Boiko, T.V. Strizhakova, O.A. Rudnitskaya, L.P. Ruzhinskaya, M.A. Morozova, E.A. Samarskaja, N.I. Tsema
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Results of morphological, microbiological, parasitological and biochemical analysis of the Black Sea turbot that spawned in the Russian shelf of the Black Sea in 2009-2010 are presented, as well as the parameters of cellular and humoral immune factors have also been considered. Some specificities concerning the reaction of fish with skin abnormalities and lesions (ulcers and neoplasms) are revealed.

Key words: turbot, spawning, skin pathology, physiological and biochemical parameters, microflora, parazitic fauna, Black Sea.

PERSPECTIVE REGION FOR CULTIVATION OF JAPANESE SCALLOP (JAPAN SEA)

© 2013 y. D.D. Gabaev

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In the result of collection larvas of Japanese scallop on collectors in sea farms of a mariculture it is revealed, that on water area of mean Primorye are supervised the more favourable conditions for its reproduction than in the south - in Peter the Great Bay. And dynamics of number of Japanese scallop on the average and southern regions have asynchronous nature. It allows sea farms of a mariculture of exchange landing material in case off year on one of them.

Key words: scallop, proportion of floors, larvae, young.

ESTIMATION OF TRADE RETURN CASPIAN STELLATE STURGEON *ACIPENSER STELLATUS* FROM YOUNG FISH OF ARTIFICIAL REPRODUCTION

© 2013 y. G.F. Zykova[1], L.A. Zykov[2], F.V. Klimov[2]

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On the basis of the model describing change of generation number used by a fishing during life cycle, trade return stellate sturgeon from fingerling of artificial reproduction taking into account rates of maturity, periodicity of spawning and trade and natural death rate of individuals entering into its structure is defined. The role of artificial reproduction in formation of population abundance and catches structure is estimated. Recommendations about restoration and rational use of its stocks are made.

Key words: stellate sturgeon, artificial reproduction, number, a biomass, population, trade return.

SPECIFICS OF THE GREY SEA URCHIN *STRONGYLOCENTROTUS INTERMEDIUS* JUVENILES NATURAL BAY (THE JAPAN SEA) REPRODUCTION AND GROWTH IN VLADIMIR

© 2013 y. V.A. Pavluychkov, N.A. Shepel

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The object of research is the grey sea urchin Strongylocentrotus intermedius, which is widespread in the coastal waters of northern Primorye. Found that a large number of the grey sea urchin larvae are drifted to Vladimir Bay, where they settle to the collector sets for sea scallop cultivation. Possibility of the settled grey sea urchin juvenile rearing up to viable stage in the growing cages and further settling on the depauperated open coastal fishing grounds is studied.

Key words: grey sea urchin, artificial reproduction, number of larvae, juvenile growth, Vladimir Bay.

STATE AND PERSPECTIVES OF INVESTIGATIONS ON THE PROBLEM OF POND ECOSYSTEMS PRODUCTIVITY INCREASE AT STOCKING FISH REARING

© 2013 y. Z.I. Shmakova

All-Russian Scientific Research Institute of Freshwater Fisheries, p. Rybnoe, Moscow area

Approaches to the ecosystem formation of growout ponds and new methods of natural food supply increase are being considered. Data on improvement of fish-farming characteristics for fish stock rearing (viability, average fish mass, natural and total fish productivity, decrease of mixed feeds expenditure) by methods of the directed influence on a pond ecosystem are being given.

Key words: productivity, natural food supply, influence on biotopes and biocenoses, fish, polyculture, effectivity of ponds ecosystem, function.

PATHOLOGICAL CHANGES IN ORGANS AND TISSUES OF RAINBOW TROUT (ONCORHYNCHUS MYKISS) DUE TO VIRUS INFECTION PANCREATIC NECROSIS (IPN)

© 2013 y. N.N. Matvienko

Institute of Fisheries NAAS of Ukraine, Kiev

Elucidation of the mechanisms of adaptation of fish to disease, the definition of the norm and pathology in modern conditions is an important scientific aspect. The article provides information about pathological changes in the organs and tissues of rainbow trout under the influence of infectious pancreatic necrosis virus. With the development of viral infection in the first place affects the liver, as demonstrated shift of certain cell functions, accompanied by a corresponding shift of cytologic characteristics.
Key words: virus, pathology, salmon, histology, organs, tissues.

LYMPHOCYCTIS IN FLOUNDER (*PLATICHTHYS FLESUS* L.) IN THE RUSSIAN WATERS OF THE SOUTH BALTIC: DYNAMICS OF THE DISEASE PREVALENCE IN 2005-2010

© 2013 y. G.N. Rodjuk, S.V. Ivanov

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The study results on the dynamics of the lymphocystis prevalence in flounder in the Russian waters of the ICES 26 Subdivision of the Baltic Sea in 2005-2010 are presented. The relations between the lymphocystis prevalence and fish biological parameters (length, age, sex) as well as environmental factors (surface and bottom temperature and of water salinity) are studied.

Key words: limphocystis, flounder, *Platichthys flesus*, Baltic Sea, prevalence.

TO THE PROBLEM OF THE CASPIAN SEA (AREA OF RESPONSIBILITY OF THE RUSSIAN FEDERATION) STRATIFICATION FOR TRAWL SURVEYS

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Methodological aspects of survey planning and processing with an example for the Northern Caspian Sea are considered. An example of region stratification and the procedure of estimation of density of Russian sturgeon (*Acipenser gueldenstaedtii*) by strata and their precision is presented.

Key words: stratificated survey, Russian sturgeon, the Caspian Sea, stock assessment.

COMPARISON OF LENGTH FREQUENCY DISTRIBUTION OF ANTARCTIC KRILL (*EUPHAUSIA SUPERBA*) IN CATCHES OF CONVENTIONAL AND CONTINUOUS FISHERY TECHNIQUES

© 2013 y. D.O. Sologub

Russian Federal Research Institute of Fisheries and Oceanography, Moscow

Combination of conventional and continuous techniques during krill fishery at the Russian commercial vessel «Maxim Starostin» allowed to compare the size structure of the Antarctic krill (*Euphausia superba*) caught by these two techniques. Differences between size composition of krill caught by conventional and continuous techniques of fishery which could be connected with the trawls selectivity weren't found. We assume that the possible influence of differences between selectivity of fishing gears were exceeded by significant space-time variability of Antarctic krill.

Key words: Antarctic krill, South Orkney Islands, conventional and continuous techniques of fishery, selectivity of fishing gears, length frequency distribution.

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REVIEWS

AQUATIC ECOSYSTEMS

BEHAVIOUR OF SALMONID FISHESW (SALMONINAE)

© 2013 y. A. A. Yarzhombek

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The lifestyle and behavior of fishes of subfamilie Salmoninae much in common, but there are significant differences. They may dwell as at the bottom, and

at the pelagic area. These lifestyles may vary in the course of ontogenesis. Manifestation of aggressive and gregarious behavior can be seen in different rate, not only in various species, but in various stages of ontogenesis, and also on external condition in artificial environment.

Keywords: salmons, behavior, larvae, fingerlings, migration, spawning.

INTRODUCTION OF THE RED KING CRAB INTO THE BARENTS SEA AND ITS IMPACT ON THE ECOSYSTEM (A REVIEW). 3. ASSOCIATED ORGANISMS

© 2013 y. A. G. Dvoretsky

Murmansk Marine Biological I nstitute of Kola Science Centre RAS, 183010

An analysis of consequences caused with introduction of the red king crab concerning distribution of its associated organisms is continued in the article. No invasive species were co-introduced with red king crab invasion. In the Barents Sea, red king crabs became the most common intermediate host for the fish leech *Johanssonia arctica*, a blood parasite of fishes. In general, negative impacts for the Barents Sea ecosystem associated with distribution of its symbionts were not found.

Keywords: red king crab, Barents Sea, symbionts, fouling organisms.

Long -term changes in si ze structure of Iceland scallop *Chlamys islandica* bed near the Cape Svyatoy Nos (the Barents Sea)

© 2013 y. P. N. Z olotarev

Polar Research I nstitute of Marine Fisheries and Oceanography, Murmansk, 183038

Long-term changes in size composition of Iceland scallop bed near the Cape Svyatoy Nos have been studied for the period 1991–2010. Regular and abundant annual recruitment has been registered since 1996 till present in the eastern part of the central region of the scallop bed. In all other parts of the bed no significant settlement has been recorded for the last 15 years, resulting in gradual aging of the scallop population.

Keywords: Iceland scallop, Barents Sea, size structure, recruitment.

BIOLOGICAL CHARACTERISTICS OF THE EASTERN SUBSPECIES OF ARCTIC GRAYLING *THYMALLUS ARCTICUS* PALLASI VALENCIENNES OF THE UPPER KOLYMA'S BASIN AND THE MIDDLE KOLYMA'S ONE (WITHIN THE MAGADANSKAYA OBLAST)

© 2013 y. A. E. Koposov

Federal State Budgetary I nstitution "Ochotskrybvod", Magadan

In this article the author analyzes age and size, morphology, some features of the biology of reproduction, embryogenesis, nutrition of the Eastern subspecies of arctic grayling of the upper and the middle Kolyma's currents, the Kolymskoje water storage basin and some Kolyma's tributaries. Also the growing equation and the natural mortality coefficient were calculated. Also there are data on catch and it is written about the prospects.

Keywords: arctic grayling, Kolyma's basin, morphology, size, equation of size, development, nutrition, calculating, natural death-rate's coefficients, age of full sexual maturation, theoretical maximum age, economic significance.

DYNAMICS OF JAPANESE FLOUNDER *Pseudopleuronectes yokohamae* IN PETER THE GREAT BAY (JAPAN SEA)

© 2013 y. A. N. Vdovin, S. F. Solomatov, Yu. I. Zuenko

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Dynamics of Japanese flounder *Pseudopleuronectes yokohamae* abundance in

Peter the Great Bay (Japan Sea) is analyzed from 1984 to 2011. The stock of this species was high in 1980–1990s, then sharply declined, and just recently began to recover. Strength of the flounder year-classes was considerably determined by its spawning stock, but depended also on environments of pre-wintering feeding of yearlings described by temperature in the upper layer of the Intermediate water in autumn. Using the reproductive model, the generations of 2010–2011 are estimated as strong ones, that corresponds to 2–3-decades cyclicity in dynamics of the Japanese flounder population.
Keywords: Japanese flouder, Pseudopleuronectes yokohamae, Peter the Great Bay, Japan Sea, dynamics of abundance, year-class strength, spawning stock, upwelling, anomalies of temperature, fish population modeling.

ESTIMATION OF TRADE RETURN RUSSIAN CASPIAN STURGEON *ACIPENSER GUELDENSTAEDTII* FROM YOUNG FISH OF ARTIFICIAL REPRODUCTION

© 2013 y. L. A. Z ykov, G. F. Z ikova* , M. I. Abramenko**

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On the basis of the model describing change of generation number used by a fishing during life cycle, trade return caspian russian sturgeon from fingerling of artificial reproduction taking into account rates of maturity, periodicity of spawning and trade and natural death rate of individuals entering into its structure is defined. The role of artificial reproduction in formation of population abundance and catches structure is estimated. Recommendations about restoration and rational use of its stocks are made.
Keywords: russian sturgeon, artificial reproduction, number, a biomass, population, trade return.

CULTIVATION OF COLD WATER CRUSTACEAN IN CLOSED WATER SYSTEMS

© 2013 y. D. V. Tyrin, N. P. Kovatcheva, A. V. Z higin

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Were determined the main parameters of the Red king crab and the American lobster metabolism and researched the dynamic of nitrogen compounds concentrations in the closed water systems (CWS). Were found the optimum filler for a biofilter and that the introduction of the nitrogen source in combination with a gradual decrease of water temperature allows intensification start up period. Were developed recommendations for the design of CWS for Red king crab and American lobster cultivation.
Keywords: Red king crab, American lobster, closed water systems (recirculation systems), mariculture, Crustacean.

FORECASTING OF PROSPECTIVE FISHING GROUNDS ON THE BASIS OF REMOTE SENSING OF SEA SURFACE TEMPERATURE IN CENTRAL-EAST ATLANTIC

© 2013 y. M. M. Dubishchuk, V. B. Lukatsky

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In order to improve the level of information provision for navigators and other professionals in the fisheries sector a decision support system Fishing Forecast in CEA was developed for specifying prospective fishing grounds. The fundamentals of functioning as well as methodological principles that served as a basis for the system were set out. The types of commercial forecasting were described and a comparative analysis of recommendations provided with actual

situation was carried out based on the work of the Russian fleet in the CEA.
Keywords: Central-East Atlantic, forecast of fishing conditions, data base, satellite data, fishery statistics, decision support system.

A MODERN APPROACH TO THE MONITORING OF INFECTIOUS HEMATOPOIETIC NECROSIS VIRUS (IHNV) IN KAMCHATKA POPULATIONS OF SOCKEYE *ONCORHYNCHUS NERKA* (SALMONIFORMES, SALMONIDAE)

© 2013 y. S. L. Rudakova, E. V. Bochkova

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A sampling of mature fish must be done at the end of spawning in the spring and summer subgroups for a reliable estimate of the IHNV epidemic situation in the water resources to be established. It has been shown that the spring subgroup caused instability in the percentage of IHNV among sockeye from Kamchatka Lakes. The prevalence of IHNV in the annual population of sockeye from Azabachie Lake (0,16) is significantly below that of Kurilskoe Lake (0,41) and Nachikinskoe Lake (0,32). A statistically significant trend in the variance of IHNV prevalence over time was not detected.
Keywords: sockeye salmon, Kamchatka, infectious hematopoietic necrosis virus, monitoring, epidemiology.

THE INTERNATIONAL RELATIONS AND THE RUSSIAN RESEARCHES IN THE FIELD OF MARINE FISHERIES IN THE EARLY PERIOD .PART 2. FAR EASTERN SEAS

© 2013 y. A. I. Glubokov, N. R. Popova

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We consider the Russian international relations in the field of marine fisheries from the Middle Ages to the first quarter of the XX century in the Far Eastern Seas. The survey includes little-known sources, which allows to characterize the formation of the Russian international marine fisheries interactions.
Keywords: history of the international fisheries, marine fisheries law, international fisheries management research.

ON MATHEMATICAL DESCRIPTION OF GILLNET SELECTIVITY

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Gillnet selectivity is described on the basis of a physical model of interaction between fish and gillnet. The key approach is to describe the processes of 1) entrance the fish into mesh, and 2) retention of fish in mesh. Analysis of the mechanics of the interaction between fish and gillnet provides a conclusion about mathematical functions that describe the probability of (i) entrance into mesh and (ii) retention in mesh. It is suggested about the nature of the formation of uninomodal and polymodal length frequency distributions of catch.
Keywords: gillnet selectivity, model, size group frequency, length class.

APPLICATION OF THE DATA OF THE THERMAL CONDITIONS SATELLITE MONITORING IN ASSESSMENT AND PREDICTION OF THE FISHERY CONDITIONS IN THE CENTRAL-EASTERN ATLANTIC OCEAN

© 2013 y. V. B. Lukatskiy, M. M. Dubischuk, G. E. Maslyankin

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The uniform data base of fishery and hydrological data (DB “Prom-Hydro CEA”) for CEA has been created for the purpose of precise diagnostics of the fishing conditions and more precise assessment of the relationship with environment conditions variability. The optimal SST values for formation of commercial

aggregations of jack mackerel (*Trachurus trecae*) and horse mackerel (*Trachurus trachurus*) in EEZ of Morocco and Mauritania were found. The new informational quantitative characteristics and indicators of commercial fishes distribution and migration peculiarities were obtained.

Keywords: the central-eastern atlantic ocean, jack mackerel, database, satellite data, fishery statistics, thermal conditions.

SCIENTIFIC AND RESEARCH FISHERY OF THE TOOTHFISH IN THE SUBAREA 88.3 (THE BELLINSGHAUSEN SEA) IN 2010–2012.

© 2013 y. A. F. Petrov, V. A. Tatarnikov, I. I. Gordeev, E. F. Uryupova

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Scientific and research fishery of toothfish of the genus *Dissostichus* was carried out by Russia in the Subarea 88.3 (the Bellingshausen Sea) in the seasons 2010–2011 and 2011–2012. Obtained data further basic goals of the research for data-poor area (SC-CAMLR-XXX/5, par. 2.26–2.29, 2011). A total stock of the toothfish has been estimated in the 1466 to 2026 tones range using the program "Chartmaster", while 3433 tones using an areal method in the SSRUs B, C, D.

Key words: Antarctic toothfish, trot-line, longline set, biological analysis, length composition of catches, by-catch of accompanying species.

ABOUT CAPTURES OF SKILLFISH *ERILEPIS ZONIFER* (ANOPLOPOMATIDAE) IN THE NEAR SURFACE LAYER TO THE EAST FROM KURIL ISLANDS

© 2013 y. Yu. N. Poltev, A. O. Shubin

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Studies performed in Pacific waters demonstrated that the skillfish in the near surface layer to the east from Kuril Islands meets in August. The absolute length of these individuals has made 38.5–52 cm. The Superficial temperature of water at which they have been caught see, changed in limits 7.7–10.1°C.

Keywords: the skillfish, *Erilepis zonifer*, waters to the east of Kuril Islands.

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The history of foundation of our Instituite is considered, the basin and scope of its activity are indicated, and the most considerable results obtained for the period of the Institute's existence are enumerated. The leading scientists who established the Institute and were in charge of the main research activities are mentioned.

Keywords: institute, history, science, results.

FISH STOCKS AND FISHERIES IN THE AZOV AND BLACK SEA BASIN

© 2013 y. S. I. D udkin, Yu.I. Rekov, V. D . D akhno , E. M. Saenko

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Materials are presented that characterize the status of water biological resources in the Azov and Black Sea Basin and sustainable use of fishery resources under current conditions. The main problems of fisheries development and fishing efficiency have been specified.

Keywords: Azov and Black sea fishery basin, water biological resources, fish stocks, fisheries.

HYPOXIA AND ITS ECOLOGI CAL CONSEQ UENCES IN THE SEA OF AZOV

© 2013 Г. Z . V. ALEKSANDROVA, T. E. BASKAKOVA

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

Based on long-term data (1960–2012) we have considered changes in the boundaries of hypoxic zones in the Azov Sea in summer. The most important factors determining hypoxia development in the near-bottom sediments have been revealed. It is shown that the primary reason of near-bottom oxygen deficiency in an eutrophic water body with sufficient amounts of organic matter, such as the Azov Sea, is the considerable consumption of oxygen to oxidize the

organic matter, primarily, of bottom sediments, and the trigger mechanism is the vertical stability of water masses.

Keywords: oxygenation, oxygen deficiency in the near-bottom layer, biochemical oxygen consumption in the surface layer of bottom sediments, organic carbon, hydrobionts death, redox processes.

SPE CIFI C FEA TURES OF ZOOBE NTHOS DEVE LOPME NT AND FEE DING OF THE AZOV RO UND GOB Y *NEOGOBIUS MELANOSTOMUS* UNDER CONDITIO NS OF INCREASE D SA LINITY

© 2013 г. U . N . Aleksandrova, I. G. Korpakova, L. N . Frolenko

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The increased salinity of 2006–2011 in the Azov Sea has resulted in the transformation of hydrobiont communities including zoobenthos. The following species dominate now in the eastern Taganrog Bay: *Oligochaetae* and *Chironomidae* larvae but in the western part of the bay *Cerastoderma glaucum*, *Abra ovata* and *Hydrobia* mollusks are predominant. *Gastropoda* and *polychaeta* dominate in the sea proper, primarily, in hypoxic zones; bivalves are observed in other regions. In the sea the zoobenthos biomass amounted to 86.5 g/m$_2$ in summer and to 139.1 g/m$_2$ in autumn, while in the bay the biomass averaged 39.5 g/m$_2$ and 49.4 g/m$_2$, respectively. Round goby occurr all over the sea and the bay, with the greatest density in the south-western part of the sea proper. The fish prefer areas where zoobenthos is abundant. In the sea proper and in the western body of the bay about 90% of the fish diet consists of mollusks (in particular, *Cerastoderma glaucum*), in the eastern bay *Polychaeta*, shellfish and fish prevail in the goby's diet. The composition and distribution of zoobenthos, the distribution, size and weight characteristics of round goby and its feeding corresponded to the parameters observed in 1951–1957 when a similar salinization had taken place after the regulation of the river Don.

Keywords: Azov Sea, salinity, zoobenthos, round goby, biomass, population.

DYN AMICS OF FISHABLE STOCKS OF HAARDER IN THE AZOV SEA

© 2013 y. V. B. Besedin, Yu. I. Rekov

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

The haarder which acclimatized to the conditions of the Azov Sea is at present the only commercial fish with a large body. In 1997–2012 its fishable stocks ranged from 8 to 33 th tons. From 2009 we observe a decreasing trend in its fishable stocks. High abundance of the fish can be restored and sustainable catch can be ensured on the condition that the haarder yield is limited and its reproduction is successful.

Keywords: fishable stocks, haarder, age composition.

STATU S OF CRAYFISH POPUL ATIONS, ITS STOCKS AND FISHERIES IN THE WATER BODIES OF THE AZOV-DON REGION

© 2013 y. E.Yu. Glushko, I. A. Glotova

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

Population dynamics, stocks and fisheries of crayfish in the present period have been characterized and their trends are revealed. Recommendations are developed on the forecasting, conservation and rational use of the Kuban crayfish stocks. We have revealed some factors that can hinder the crayfish reproduction, abundance, stocks and catches.

Keywords: Kuban crayfish, population structure, abundance, stocks, fisheries.

PRESENT -DAY STATU S OF THE BLACK SEA SPRAT IN THE RUSSIAN WATERS OF THE BLACK SEA

© 2013 y. V. D . D akhno , O. A. Perevalov

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

Materials have been summarized on biological specific features of sprat, its stock

dynamics, distribution and harvest in the Russian territorial waters of the Black Sea from 1993 to 2012. Principal causes of stocks' decrease and poor harvest of the sprat are revealed.

Keywords: sprat, store, craft, allocation, Black Sea.

HYD ROMETEOROLOGICAL REGIME OF THE NORTH-EASTERN BLACK SEA (BY RESULT S OF SURVEYS OF 2001–2010)

© 2013 y. S.V. Zhukova, V.M. Shishkin, A.P. Kuropatkin, L.A. Lutynskaya, I.F. Fomenko, T.I. Podmareva, D.S. Burlachko, V.G. Karmanov

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The materials of research surveys undertaken in the Black Sea in 2001–2010 as well as the data of Russian hydrometeorological service have allowed us to reveal some specific features of the present-day hydrometeorological regime.

Keywords: water temperature, salinity, transparency, water color, long-term period.

NATURA L REPRO DUCTIO N OF SEMI -MIGRA TOR Y FISH IN THE US T-MANYCH RESERVOIR WI TH PROSPE CTS FOR RES TORA TIO N OF THE DO N FISH STOCKS

© 2013 y. I. N . Ivanchenko, N. I. Syrovatka

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Results of studies on the Don species of semi-migratory fish in the Ust-Manych reservoir are presented and the effectiveness of spawning grounds has been characterized. The bypass channel of the Ust-Manych hydropower station was surveyed during spring and summer fish anadromous migrations in 2009–2011. In two branches of the channel we found aggregations of mature migrants of fish species as zander, bream, roach, carp and vimba. Indigenous species such as zander volgensis, prussian carp, white bream, river perch and others were also observed. The stocking capacity of spawning grounds of the reservoir will increase if the hydrological regime of this waterbody is developed and maintained. The commercial return of the young grown there will provide greater yields of valuable fish species, e.g. up to 359 tons of zander and to 279 tons of bream.

Keywords: Ust-Manych reservoir, by-pass channel, spawning, semi-migratory fish, bream, pike perch.

CHA NGES IN SA LINITY OF THE AZOV SEA

© 2013 y. A. P. Kuropatkin, S. V. Z hukova, V. M. Shishkin, D. S. Burlachko, V. G. Karmanov, L. A. L utynskaya, I. F. Fomenko, T. I. Podmareva

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Some specific features of changes in salinity and dynamics of freshened waters of the Azov Sea have been considered over the period 1960–2012.

Keywords: salinity, freshening, salinity increase, stabilization, freshened zone, isohaline.

DYNAMI CS OF ICHTHYOP LANKTON DIS TRIB UTIO N IN THE NOR THEAS TER N PAR T OF THE BLACK SEA

© 2013 y. V. P. N adolinski, O. A. Perevalov

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

Fish survivability at early stages of their life is very important not only for the formation of individual generations but for the whole fish stocks as well. Ichthyoplankton distribution in the Black Sea is determined by season, egg buoyancy, depth at which spawning takes place, speed and direction of water flow and wind intensity. Based on the studies conducted over 2000–2012 we have revealed the regions and periods of the greatest egg and larvae aggregations of the Black Sea fish species.

Keywords: ichthyoplankton, eggs, larvae, distribution, depth.

THE PRESENT -DAY STATU S OF SEMI-MIGRATORY FISH (PIKE PERCH AND ROACH) OF THE AZOV SEA AND MEASURES TO IMPROVE FISH HABITAT IN THE EASTERN AZOV WATER BODIES

© 2013 y. E. A. Poroshina, N. I. Syrovatka, S. I. D udkin

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

Data on conditions and efficiency of natural propagation of pike perch and roach in the water bodies next to the Azov Sea are presented. Potential abilities of the fish husbandry are shown to be still high in the eastern region despite considerable changes in the bioecological environment. Reasons have been analyzed of the low propagation efficiency observed last years, and the necessity to conduct some optimization measures is discussed.

Keywords: eastern water bodies adjoining the Azov Sea, pike perch, roach, propagation efficiency, ichthyofauna.

MATU RATION SPECIFICITIES AND PATHOLOGY OF REPRODUCT IVE PRODUCT S OF RED MULL ET *MULLUS BARBATU S PONTICUS* AND WHITING *ODONTOGA DUS MERLANGUS EUXINUS* IN THE BLACK SEA

© 2013 y. S. G. Sergeeva, G. G. Kornienko, E. A. Samarskaya, I. V. Shishkina, N. I. T sema

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Results are presented of studies on physiology and maturation of red mullet and whiting that were conducted in 2009–2011. Prolonged spawning of the fish affects their metabolic characteristics. High content of proteins, fats and carotinoids necessary for gametogenesis is kept in the liver and muscles of red mullet. High content of fats in liver (77%) is typical for whiting with its almost all-year-round spawning. Continuous type of vitellogenesis and the fractional type of spawning determine the great amount of yolk oocytes of different size and the maturation of reserved oocytes.

Keywords: red mullet, whiting, gonads, oocytes, maturation stage, physiological status.

REPRODUCT IVE ASSESSMENT OF ROUND GOBY *NEOGOBIUS MELANOSTOMU S* FROM THE AZOV SEA IN THE PRESENT DAY PERIOD

©2013 y. N . I. T sema, E. A. Samarskaya, S. I. D udkin

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Physiological and biochemical parameters of round goby breeders from the Azov Sea have been studied during their spawning and the results are presented. The reproductive abilities are shown to be decreased in the females sampled in some investigated areas. We have come to a conclusion that slow transportation of trophic substances from the liver to the gonads can decrease the reproductive potential of breeders, and finally can be a cause of low fish fecundity and poor viability of the progeny.

Keywords: round goby, Azov Sea, gonadosomatic index, hepatosamatic index, liver, oocytes, fecundity, carotinoids.

CHARACT ERISTICS OF PLANKTONIC COMMUN ITY OF CILIATES FROM THE AZOV SEA

© 2013 y. N . A. Shlyakhova

Russian Federal Azov Fisheris Research I nstitute, Rostov-on-Don, 344002

Taxonomic composition: shell-less brackishwater oligotrichidaes are predominant. The size of ciliates of the Azov Sea ranges from 10 to 200 micron. Small organisms dominate in the Taganrog Bay, in the sea proper the larger ciliates occur more often; the portion of large organisms increases towards autumn, though the portion of small-sized infusoria has grown last years. The annual values of the plankton abundance and biomass amount to 6.7 mln ind./

m^3 and 216 mg/m^3 in the Taganrog Bay and to 4.7 mln ind./m^3 and 237 mg/m^3 in the sea proper.

Keywords: taxonomic composition, size of ciliates, abundance, biomass.

THE IMPORTANC E OF NATU RE PROTECT ION STUD IES IN THE AZOV-BLACK SEA BASIN AND PROBLEMS OF THEIR IMPLEMENT ATION

© 2013 y. I. G. Korpakova

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

We have considered problems of carrying out nature protection studies in the Azov and Black Sea basin and the improvement of these investigations' efficiency.

Keywords: nature protection research, water bioresources, sea regime, Azov-Black Sea basin, efficiency.

RARITY OF MACROPHYT OBENT HOS COMMUN ITIES FROM THE BLACK SEA RUSSIAN SHELF

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The Black Sea macrophytobenthos communities from the Russian shelf have been revealed by the Braun-Blanquet method and their rarity has been assessed. It has been shown that the Mediterranean syntaxa found at the borders of their habitat in the Black Sea and considered as conditionally clean water dwellers (classes Lithophylletea and Cystoseiretea, order Cystoseiretalia), as well as phytocenoses with Zostera (class Zosteretea), include maximum number of species occurring in confined and particular habitats and characterized by low abundance.

Keywords: rarity, communities, macrophytic algae, syntaxonomy, Black Sea, Russian shelf.

THE COASTAL BIOCENOSES OF ABRAU PENINSUL A IN THE BLACK SEA OVER 2010–2012

© 2013 y. D . F. Afanasyev, I. E. T sybulski, T. O. Barabashin, L. V. Belova, L.Yu. Naletova, M. V. Bychkova, I. G. Korpakova

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The paper considers characteristics of phyto- and zooplankton and phyto- and zoobenthos in the coastal areas of Abrau Peninsula in the Black Sea at transects differing by their anthropogenic load within the bounds of a phytal zone. Results of microbiological studies are presented.

Keywords: coastal biocenoses, phytal zone, phytoplankton, phytobenthos, zooplankton, zoobenthos, bacterioplankton, bacteriobenthos, Black Sea.

PESTICIDES AND POLYC HLORBIPHENYL S IN THE NORTH-EASTERN BLACK SEA ECOSYSTEM BY THE DATA COLL ECT ED IN 1992–2012

© 2013 y. I. G. Korpakova, L. I. Korotkova, A. A. L arin, G. G. Kornienko

Azov Fisheries Research I nstitute, Rostov-on-Don,344002

Results are presented on the content of pesticides and polychlorbiphenyls in the water, bottom sediments and some commercial fish species in the north-eastern Black Sea over the period 1992–2012. Chlorine-, nitrogen-, phosphorous- and sulphurcontaining pesticides found in the sea water surpassed the maximum permissible concentrations. Chlorine pesticides and polychlorbiphenyls were revealed in the atmospheric precipitations over the north-eastern Black Sea. Correlation has been found between the pesticides and biphenyls' concentrations detected in the fish and histopathological changes observed in their tissues.

Keywords: Black Sea, chlorine pesticides, polychlorbiphenyls, water, bottom sediments, fish.

ACCU MUL ATION OF HEAVY METALS IN ICHTHYOFAUN A AND THE

ENVIRONMENT OF THE NORTH-EASTERN BLACK SEA

© 2013 y. I. G. Korpakova, A. A. L arin, I. V. Korablina

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Results are presented on the concentration of some heavy metals in water, bottom sediments and valuable commercial fish species of the Black Sea. The accumulation of metals in organs and tissues of fish have been considered in regard to the concentration of elements in the water and bottom sediments. Possible effects of high and low metal concentrations on hydrobionts have been try to assessed.

Keywords: Black Sea, pollution, heavy metals, hydrobionts, permissible concentration.

HYDROCARBONS IN THE BIVALVES OF THE AZOV SEA

©2013y. I. G. Korpakova, L. F. Pavlenko, A. A. L arin, N. S. Anokhina, G. V. Skrypnik

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Data are given on the accumulation of hydrocarbons and polyarenes by the bivalves of the Azov Sea, the materials were collected during ecological surveys conducted over 2004–2010. The correlation between the accumulation rate of hydrocarbons in the bivalves and the environmental pollution has not been revealed either in natural or experimental conditions, and the reasons of such an absence are considered. The application of bivalves as indicators of water ecosystem pollution is proposed.

Keywords: Azov sea, bivalves, water environment, bottom sediments, hydrocarbons, polyarenes.

DYN AMICIS OF CESIUM-137 IN THE AZOV AND BLAK SEA ECOSYSTEM AT PRESENT

© 2013 y. I. D . Mkhitaryan, N. A. N ebesikhina

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In 2005–2012 the content of cesium-137 was measured in the bottom sediments and fish of main commercial species from the Azov Sea (its eastern part), the Taganrog Bay and the north-eastern Black Sea. The specific volumetric activity of Cs-137 ranged from <3 Bq/kg (detection limit) 32.2 Bq/kg in the sediments of the Taganrog Bay, 55.4 Bq/kg in the Azov Sea and 47.8 Bq/kg in the Black Sea. The maximum activity of radiocesium amounted to 1.9 Bq/kg in the tissues of pike perch and round goby from the Azov Sea and Black Sea anchovy.

Keywords: radiological monitoring, cesium-137, bottom sediments, fish.

POLLUT ION OF RUSSIAN COASTAL WATERS OF THE BLACK SEA BY PETROLEUM PRODUCT S AND POLYCYCL IC AROMATIC HYD ROCARBONS

©2013 y. L . F. Pavlenko, G. V. Skrypnik, N. S. Anokhina, T. L . Klimenko, A. I. Evseeva, V. S. Ekilik, A. A. L arin, I. G. Korpakova

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Based on the results of studies conducted in the north-eastern Black Sea in different seasons from 1993 to 2012 we have characterized water and bottom sediments pollution by oil components (hydrocarbons and resins) and polycyclic aromatic hydrocarbons (PAHs). Contemporary data are presented on the accumulation levels of petroleum hydrocarbons and individual PAHs in organs and tissues of commercial fish species from the Black Sea.

Keywords: north-eastern Black Sea, pollution, petroleum products, polycyclic aromatic hydrocarbons, water, bottom sediments, commercial fishes.

AQUACULTU RE AS A PRIORITY TREND OF RESEARCH ACT IVITIES OF AzNIIRKH

© 2013 y. A. V. Mirzoyan

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It is shown how aquaculture studies have been carrying out by AzNIIRKH during the last decade, the main achievements and prospects for further development are considered.

Keywords: aquaculture, propagation.

MORPHOLOGICAL AND BIOLOGICAL PARAMETERS OF THE AZOV-BLACK SEA SHEMAYA *CHALCALBURNUS CHALCOIDES* BREEDERS DU RING THEIR AUTU MN MIGRATION INT O THE RIVER DON

© 2013y. G. V. Golovko, A. V. Mirzoyan, G. I. Karpenko, E. V. Pereverzeva*, L. I. Z ipelt

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**Azov-Don B asin Department of Fisheries and Conservation of B iological Resourses, Rostov-on-Don, 344034*

Morphological and biological characteristics of the Azov-Black Sea shemaya *Chalcalburnus chalcoides* migrating to the Don for autumn spawning are presented. In order to develop the standards of artificial breeding of the species, we have analyzed such parameters as size and weight of the fish, their age composition, fecundity, gonad state, and have calculated gonado-somatic index. We have correlated females' fecundity with commercial length and total weight.

Keywords: migratory Azov-Black Sea shemaya, autumn anadromous migration, breeders, fecundity, weight, length, gonado-somatic index, oocytes.

ASSESSMENT OF GENETIC VARIATION OF THE BROOK TROUT *SALMO TRUTTA* FROM THE RIVERS FLOWING INT O THE NORTH-EASTERN BLACK SEA

© 2013 y. N . A. N ebesikhina[1], N. N . T imoshkina[1], A. E. Barmintseva[2], S. B. T uniev[3], M. L . Gogua[4]

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The population structure and effect of artificial reproduction of *Salmo trutta* on the genofond of the species have been studied. We have analyzed the polymorphism of eight subsamples of brook trout spawning in the rivers of the Black Sea coast of Russia and Abkhazia by means of microsatellite markers and nucleotide sequence of mtDNA D-loop region (474 p.n.). Comparative analysis of microsatellite markers has revealed reliable genetic differentiation between most groups of brook trout and homogeneity of the same samples when mtDNA sequencing has been studied.

Keywords: STR , mitochondrial DNA (mtDNA), *Salmo trutta*, genetic polymorphism.

WAYS AND METHO DS OF DEVE LOPME NT OF ECOLOGI CAL AND TOXI COLOGI CAL STUDIES ON THE PES TICIDE PO LLUTIO N OF WA TERBO DIES IN THE AZOV SEA BASI N

© 2013 y. O. A. Z inchuk, I. L . L evina

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During forty years the researchers of Fishery Toxicology Department have studied pesticides effects on hydrobionts and water bodies in the Azov Sea basin. The dynamics of the development of our ecological and toxicological investigations is discussed. The priorities, trends and goals of scientific studies have been changed and updated in accordance with the market development of new pesticide preparations.

Keywords: pesticides, hydrobionts, toxicity, monitoring, biochemical processes, teratogenicity.

STUD IES OF PES TICIDE PO LLUTIO N OF COAS TAL WA TERS OF THE TAGA NROG AND YASE NSKI BAYS OF THE AZOV SEA IN 2009–2011

©2013 y. L . A. Bugaev, O. A. Z inchuk, A. V. Voikina, V. A. Valiullin, Yu. E. Karpushina

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

Residual amounts of pesticides in the coastal water of the Azov Sea were studied in spring and autumn seasons of 2009–2011. The concentrations of the pollutants were determined and the degree of their danger for hydrobionts was assessed. The concentrations of pesticides diluted in the water of the Taganrog Bay and the eastern Azov Sea are shown to be lower than the maximum admissible concentrations set for fishery waterbodies.

Keywords: pesticides, maximum permissible concentration, high-performance liquid chromatography, active ingredients, pesticide pollution, Taganrog bay, Yasenski bay.

TES TING OF THE WA TER ECOS YSTEMS PO LLUTED BY PES TICIDES WI TH THE HE LP OF EXPRESS -ME THO DS

© 2013 y. S. I. Kataskova, O. A. Z inchuk, L. A. Bugaev

Azov Fisheries Research I nstitute, Rostov-on-Don, 344002

In the autumn of 2009 we studied pesticide residues in the coastal waters of the Taganrog Bay. The additive method allowed us to make a theoretical estimate of pesticides' danger for hydrobionts of different trophic levels.

Keywords: pesticides, maximum permissible concentration, high-performance liquid chromatography, active ingredients, pesticide pollution, toxicology.

ASSESSME NT OF SYNERGI C ACTIO N OF MO DER N PES TICIDES FO UND IN THE WATER BO DIES OF THE AZOV SEA BASI N ON COMMER CIA L FISH SPE CIES AND THEIR FOO D BASE

© 2013 y. I. L . L evina, O. A. Z inchuk, N. I. Shcherbakova, E. A. Fedorova, L.Ya. Kuznetsova, N. A. Gumnenkova, T. N . Karpusheva, L. M. Besschetnova

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Synergic action has been studied of the pesticides (imazalil, iprodione, tebuconazole and ethofumesate) found in the water bodies of the Azov Sea basin on phyto- and zooplankton, zoobenthos, sturgeons, gobies and Cyprinidae. These pesticides in the combination applied are shown to have a negative effect on some links of the trophic chain even if they are used in concentrations smaller than maximum admissible concentrations adopted for fishery waterbodies.

Keywords: pesticides, hydrobionts, toxicity, fecundity, ontogenesis, teratogenicity, biochemical processes.