The Progress Report on implementation of BSAP in Russia

with the support of

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Introduction

The Russian Federation highly appreciates the HELCOM Baltic Sea Action Plan adopted by all Baltic countries within the framework of the Baltic Marine Environment Protection Committee (HELCOM) as the main strategic document for recovery of the proper ecological condition of the Baltic Sea marine environment. The commitment to the goals and tasks set in the HELCOM Baltic Sea Action Plan was stressed in the report of Prime-Minister of the Russian Federation V.V. Putin at the Baltic Sea Action Summit in 2010.

Chapter 1. Institutional support

Solution of the tasks set in the National Program of Measures for Recovery and Rehabilitation of the Baltic Sea Ecosystem presented at the HELCOM Ministerial Session in 2010 is based on the following guideline documents adopted by the Government of the Russian Federation in 2009-2013 in the sphere of environmental protection.

The Water Strategy of the Russian Federation for the period until 2020 approved by the Government of the Russian Federation in 2009 formalized the basic principles of state policy in the sphere of water bodies use and protection, adoption and implementation of management decisions for preservation of the aquatic ecosystems ensuring the highest social and economic effect.

The Water Strategy contains the Plan of measures aimed at achievement of strategic goals, including improvement of the system of state management of water bodies use and protection, including the sphere of international cooperation, scientific-technical and staffing support of the water resource utilization system, education and attitude development of the population in the sphere of sustainable use and protection of water bodies.

The priority areas of improvement of water bodies state management include:

- development of the scheme of integrated use and protection of water bodies;
- development of standards of permissible impact on water bodies with account for the regional specific features and individual characteristics of water bodies.

The Water Strategy Plan of Measures, includes, inter alia:

- creation of mechanisms of economic incentives for reduction of pollutants discharge in wastewater;
- creation of soft lending vehicles and subsidies of construction, reconstruction and modernization of recirculating water supply systems, complexes of waste treatment facilities based on technologies ensuring specified waste water treatment;
- regulation of economic use of the territories of water conservation zones and

protected shoreline belts of water bodies;

- development of the system of state monitoring of water bodies, creation of a unified automated information system of state monitoring of water bodies.

The Strategy of Marine Activities Development for the period until 2030 approved by the Government of the Russian Federation in 2010 is based on the Marine Doctrine of the Russian Federation approved in 2001 and is "the founder" of application of the ecosystem approach in strategic planning.

The Strategy provides for transition to integrated planning of marine activities development and management, integrated development and management of coastal waters and coordination of the programs of integrated development of coastal territories and offshore water areas with programs of management of catchment areas as well as marine spatial planning.

The Strategy of Social-Economic Development of the Northwest Federal District for the period until 2020 (approved by the executive order of the Government of the Russian Federation on November 18, 2011) identifies the forward-looking guidelines and areas of development of the social-economic complex and the final results: aggregated indicators of the economy and social sphere of the district in general and the particular subject. The Strategy involves all spheres of activity in the region promoting implementation of the integrated system approach to regional development planning.

Based on the Strategy the Ministry of Regional Development jointly with the committed federal executive authorities and executive authorities of subjects of the Russian Federation have developed a draft plan of measures for its implementation that will be taken into account in development of state, federal target programs as well as other programming documents. .

The plan of the Strategy implementation comprises the measures aimed at improvement of the ecological situation and reduction of the adverse environmental impact on the territory of the Russian part of the Baltic Sea catchment area.

Federal Law No. 287-FZ dated December 30, 2012 "On Introduction of Amendments to Federal Law "On the Continental Shelf of the Russian Federation" and Federal Law "On Internal Marine Waters, Territorial Waters and Adjacent Zone of the Russian Federation" came into effect on July 1, 2013.

The Law identifies the specific features of operation and use of artificial islands, installations, structures, underwater pipelines, drilling operations on the continental shelf, in internal marine waters and in the territorial sea.

Under the Law the aforesaid activities during regional geological studies, survey and production of raw hydrocarbons as well as oil and oil products transportation and storage are only possible provided there is a plan providing for measures for prevention

and response of oil and oil products spills in the marine environment. The plan is to be approved by the operating organization provided there is a positive state ecological expert conclusion with further notification of the federal bodies identified by the President of the RF and the Government of the RF.

The Law specifies the duties of the operating organization in case of oil and oil products spills and, in particular, it must fully compensate for the damage inflicted on the environment.

The operating organization is to create a system of monitoring of the condition of the marine environment in the area of its activities, to have its own emergency rescue services, forces and resources as well as financial support of the plan (bank guarantee, insurance contract or a document confirming creation of a reserve fund).

In case of failure to eliminate the spill additional forces and resources of the unified state system of emergency prevention and response are to be engaged based on the plan.

If the operating organization is engaged for drilling, performance of works involving operation and use of artificial islands, installations, structures, underwater pipelines, the holder of the license to use subsurface resources incurs additional liability for damage compensation.

Regulation on State Monitoring of the Condition and Pollution of the Environment was approved by the executive order of the Government of the Russian Federation No. 477 dated June 6, 2013.

The objects of state monitoring are the atmosphere air, soils, surface waters of water bodies (including hydrobiological indicators), ozone layer of the atmosphere, ionosphere and near-Earth space.

Organization and implementation of state monitoring is provided by the Federal Service for Hydrometeorology and Environmental Monitoring with participation of other authorized federal executive authorities and executive authorities of subjects of the Russian Federation according to their competence established by the legislation of the Russian Federation.

The state monitoring system includes the state observation network, its formation and functioning being supported by the Federal Service for Hydrometeorology and Environmental Monitoring, as well as territorial systems of observation of the environmental condition, its formation and functioning being supported by executive authorities of subjects of the Russian Federation according to the established procedure.

In the process of formation of the state system of observation of the environmental condition account is taken of the stations and systems of observation of the environmental condition in the areas of the objects having an adverse impact on the environment, their owners performing monitoring of the condition and pollution of the environment in areas of impact of these objects (local systems of observation) in accordance with federal laws.

The Federal Service for Hydrometeorology and Environmental Monitoring maintains the Unified State Fund of data on the environmental condition and pollution and, inter alia, provides the committed organization and population with current and urgent information on the change of the environment, warnings and forecasts of its condition.

The Plan of Actions for implementation of the fundamentals of the state policy in the sphere of ecological development of the Russian Federation for the period until 2030 approved by the Order of the Government of the Russian Federation No. 2423-r dated December 18, 2012 includes, inter alia, development (rework) of the following documents in 2012-2013:

- draft federal law No. 584587-5 "On Introduction of Amendments to Particular Legislative Acts of the Russian Federation with Regard to Improvement of Rating in the Sphere of Environmental Protection and Introduction of Measures of Economic Incentives for Business Entities for Introduction of the Best Technologies";
- draft federal law No. 584399-5 "On Introduction of Amendments to Federal Law "On Production and Consumption Wastes" and Other Legislative Acts with Regard to Economic Incentives for Activities in the Sphere of Waste Management";
- draft federal law "On Ratification of the Convention of the UN Economic Commission for Europe on the Environmental Impact Assessment in a Transboundary Context and the Protocol on the Strategic Ecological Assessment to the Convention of the UN Economic Commission for Europe on the Environmental Impact Assessment in a Transboundary Context";
- draft federal law "On Accession of the Russian Federation to the Convention of the UN Economic Commission for Europe on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters";
- draft federal law on introduction of amendments to article 8.35 of "Code of the Russian Federation on Administrative Offences" and article 258 of the Criminal Code of the Russian Federation with regard to exclusion of administrative liability for destruction of endangered species of animals or plants listed in the Red Book of the Russian Federation or protected by international treaties and recognition of such actions as criminal offences;
- preparation of draft executive orders of the Government of the Russian Federation:
  - ✓ on the criteria and (or) indicators of the adverse environmental impact of objects of economic and other activities to be used as the basis for establishing categories of economic and other activities for the purposes of state ecological supervision of subjects of the Russian Federation;
  - ✓ on state supervision in the sphere of protection and use of specially protected nature territories of federal significance;

- ✓ on organization and maintaining of a unified state automated system of monitoring of the radiation situation on the territory of the Russian Federation and its functional subsystems, on procedure and regularity of presentation of the information received in the process of state monitoring of the radiation situation into the unified state automated system of monitoring of the radiation situation on the territory of the Russian Federation and its functional subsystems;
- ✓ on state monitoring of the environmental condition and pollution, on introduction of amendments to certain acts of the Government of the Russian Federation and revocation of the resolution of the Government of the Russian Federation No. 622 dated August 23, 2000 "On Approval of the Regulation on State Service of Observation of the Environmental Condition";
- ✓ on creation and operation of the state fund of data of the state ecological monitoring (state environmental monitoring), list of kinds of the information included into it, procedure and conditions of its provision as well as the information exchange procedure;
- ✓ preparation of reports to the Government of the Russian Federation:
  - o on harmonization of the legislation in the sphere of environmental protection, resource conservation, provision of ecological safety with standards of international law within the framework of accession to the Organization of Economic Cooperation and Development;
  - o proposals for updating and improvement of liabilities and ensuring unavoidability of punishment for violation of the legislation of the Russian Federation concerning protection of the environment and ecological crimes.

The Plan of actions for implementing the fundamentals of the state policy in the sphere of ecological development of the Russian Federation provides for:

- ✓ elaboration of a draft national standard on general requirements to disposal of the products that have lost their consumer properties with account for the practice of international standardization;
- ✓ implementation of measures to eliminate the ecological damage related to frmer business activities on the territory of the subjects of the Russian Federation;
- ✓ organization of activities to destroy (dispose of) the pesticides and agrochemicals unfit for use and forbidden for use on the territories of municipal self-government bodies;
- ✓ elaboration and implementation of programs providing for inventory of waste disposal facilities, construction of landfills meeting the requirements for waste disposal and disposal facilities by executive authorities of the subjects of the Russian Federation;
- ✓ preparation of pilot projects for anthropogenic and domestic waste recycling for use as secondary raw materials in production of energy-saving materials on the territories of the subjects of the Russian Federation;

- ✓ development of ecological monitoring systems on the territories of the subjects of the Russian Federation;
- ✓ provision of access to information about the condition of the environment, its objects, implementation of environmental actions (placement on official websites, publishing in official and other editions, etc,);
- ✓ integration of the Russian systems of environmental monitoring into international systems, including the systems aimed at assessment of the background and transboundary pollution of the environment;
- ✓ participation in preparation and implementation of the new framework agreement between the Russian Federation and the European Union on strategic partnership, the Agreement on Cooperation between the Government of the Russian Federation and the United Nations Environmental Program (UNEP);
- ✓ conducting scientific researches aimed at study of transboundary water bodies and fulfillment of commitments under international conventions and intergovernmental agreements.

Decree of the President of the Russian Federation No. 1157 dated August 10, 2012 **"On the Year of Environmental Protection in the Russian Federation in 2003"**

In accordance with the Presidential Edict the following events concerning the Baltic Sea region were held in 2013 under the resolution of the Government of the Russian Federation No. 2189-r dated November 26, 2012:

I. **Conference of Heads of Governments of the Baltic countries on protection of the Baltic ecology (April 5-6, 2013, Saint Petersburg)**

At the invitation of the Chairman of the Government of the Russian Federation the conference was attended by heads of governments and high representatives of the Kingdom of Denmark, the Republic of Estonia, the Republic of Finland, the Federal Republic of Germany, the Republic of Iceland, the Republic of Latvia, the Republic of Lithuania, the Kingdom of Norway, the Republic of Poland, the Kingdom of Sweden as well as representatives of international organizations, including the UN, the Organization of Economic Cooperation and Development (OECD), the Council of the Baltic Sea States (CBSS) and HELCOM, heads of relevant Russian ministries and departments as well as committed commercial and nongovernmental structures.

Russia's initiatives and commitments presented at the Conference of Heads of Governments

1. Saint Petersburg Initiative public-private partnership.

Russia reported about establishment of the Saint Petersburg Initiative public-private partnership uniting representatives of the business and scientific communities, financial circles as well as nongovernmental organizations from various countries of the

Baltic Sea region that are well aware of the Baltic Sea problems and have successful experience of implementation of concrete projects..

The objective of creating the Saint Petersburg Initiative is consolidation of the synergy of the civil community, government, business and financial circles, development of transboundary cooperation, elaboration of economically justified actions and particular projects to solve the practical tasks of improving the condition of the environment of the Baltic Sea region.

As the first step towards implementation of the concept of the Saint Petersburg Initiative the Ministry of Natural Resources of Russia held a meeting of the concerned parties on July 18, 2013 that approved the organizational structure of the permanent Working Group including the Steering Committee, the Council of Partners comprising the parties that revealed interest in participation in the projects of public-private partnership, the Secretariat of the Working Group.

The Steering Committee included:

- Director of the Department of International Cooperation of the Ministry of Natural Resources of Russia – N.R. Inamov
- General Director of SUE “Vodokanal of Saint Petersburg” – F.V. Karmazinov
- Director of the UNIDO Center of Industrial Cooperation of the Russian Federation – S.A. Korotkov
- Chairman of the Board of the Baltic Sea Action Group Fund - Ilka Herlin
- Managing Director of Nord Steram AG Company – Matias Warnig
- Director of the Directorate for LIFE International Issues and Eco-Innovations of the European Commission – Timo Makela
- Member of the Government of Saint Petersburg, Chairman of the Committee for External Relations of Saint Petersburg – A.V. Prokhorenko

2. Commitments of the SUE “Vodokanal of Saint Petersburg”

SUE “Vodokanal of Saint Petersburg” presented its commitments to reduce the negative impact on the environment of the Baltic Sea region from the Republic of Karelia and Leningrad region (2013-2018).

The framework of this commitment includes plans of elaboration and implementation of the program of improving the basins of Ladoga Lake and Onega Lake situated on the territory of the Republic of Karelia and Leningrad region, including issues of treatment of domestic and industrial sewage, recycling of farm animal and poultry waste. The work will be performed in close cooperation with regional authorities, private companies and nongovernmental organizations.

3. The proposal made by OJSC "Gazprom on the use of LNG as a bunker fuel

Fuel and energy industry companies are paying special attention to environmental programs, they investing heavily in the development and implementation of the latest energy efficient and innovative environmentally sound technologies.

Gazprom is one of the largest global energy companies, and we are fully aware of the responsibility for the future of our planet. That is why we pay special attention to the protection of the environment.

Gazprom has declared 2013 the "Year of the Environment." A specially developed program of activities will be implemented not only at Gazprom enterprises, but also in all the regions where Gazprom is operating. The spectrum of the scheduled activities is rather impressive - from the introduction of innovative industrial technologies to educational activities in children care facilities and schools. The program includes more than 1200 events, and a total of about 5 billion rubles was allocated for its implementation.

Since its inception Gazprom have consistently pursued a policy of greening there operations. Systematic work on observing the most stringent environmental standards while implementing projects and on promoting environmentally friendly technologies will be continued also after 2013.

One of the most impressive examples of this activity is promotion of gas as a motor fuel, both in Russia and in Europe.

Today, natural gas is the fuel that to the best advantage combines economic profitability with environmental compatibility. Its use for road transport will reduce CO2 emissions by 25% and emissions of carbon oxide - by 80%.

Gazprom, being the leader of the Russian natural gas vehicle market, is extensively contributing efforts into development of the country's natural gas vehicle segment. The company is cooperating with suppliers of gas filing equipment, with bodies of state and municipal administration, economic, and academic centers, international organizations and foreign partners, it is creating new infrastructure facilities in different regions of the country and the world. Gazprom Group of Companies - "Gazprom Germania" and "Vemex" - already has a network of natural gas filling stations in Europe, and it is planned to expand it considerably.

In the past year, a number of projects were launched for logistics companies and municipal transportation to start using gas as motor fuel. In the Polish cities, there took place a successful pilot testing of LNG- buses in the urban conditions, the interest in these developments has been shown by transportation companies in Latvia. In view of the upcoming start of LNG production in the Kaliningrad region, low-tonnage LNG for transportation will become an affordable solution for cities of all the countries in the region. It is conservatively projected that the demand for gas as a vehicle fuel in Europe, by the year 2030, will be at least 50 billion cubic meters per year.

In addition to the above, Gazprom is developing activities with regard to the use of LNG as bunker fuel. The main driving force behind the development of the market for LNG bunkering is the introduction of more stringent international standards on emissions from marine engines.

The use of LNG on water transport is fully compliant with the limits on the emission from marine engines and lows avoiding costly purification filters, it also has

advantages regarding its price in comparison with the low-sulfur oil. Apart from this, technical solutions needed to switch the vessels to LNG are available and tested; for several months the first LNG-ferry is operating in the Baltic Sea.

Gazprom is effectively engaged in the preparation of a feasibility study, that is scheduled to be completed this year, for the establishment of a plant for LNG-fuel production to be used by maritime transport, which is expected to be completed this year. Also, we have started to collect portfolio of clients in the segment of LNG-bunkering fuel for maritime ships through the conclusion of agreements with potential customers.

Gazprom pays special attention to the protection of the environment when implementing large-scale infrastructure projects.

The implementation of the "Nord Stream" project.

The operator of the project, the Nord Stream Company, has invested over 100 million euros in conducting the largest as of today study to ensure the development of safe and environmentally friendly design of technical route of the pipeline. More than 40 thousand kilometers were covered by research ships; thousands of items have been found and studied on the sea floor.

In order to protect the environment in the course of construction operations and after the completion of the jobs, the Nord Stream has developed Programs of environmental and social monitoring that comprise an action plan scheduled up to 2016. The obtained data are of significance for future studies of the Baltic Sea environment.

II. **Inspection of ships calling at sea ports of the Russian Federation** with a view to exercising control over fulfillment of the requirements set by the legislation of the Russian Federation and international agreements of the Russian Federation with regard to ensuring protection against pollution of the marine environment from ships: July - September 2013.

III. **Marine expeditions** aimed at studying and conservation of the environment of the Baltic Sea, Barents Sea, White Sea and Kara Sea: July – August 2013.

Chapter 2. Financial instruments of implementing the national policy in the sphere of water bodies use and protection

The financial instruments of implementing the national policy in the sphere of environmental protection are federal and regional target programs. The measures are financed from the federal and regional budgets as well as from extrabudgetary sources (credits, loans, grants).

The measures for fulfillment of the tasks set by HELCOM BSAP are included in the following federal target programs:

- Federal target program: **"National System of Chemical and Biological Safety of the Russian Federation (1 state - 2009 – 2014)"** approved by the resolution of the Government of the RF No. 791 dated October 27, 2008. Elaboration of the 2nd stage is currently near completion **(2015-2020).**
- Federal target program: **"Clean Water" for 2011-2017** approved by the resolution of the Government of the Russian Federation No. 1092 dated December 22, 2010.
- Federal target program: **"Development of the Water Resources Utilization System of the Russian Federation in 2012-2020"** approved by the resolution of the Government of the RF No. 350 dated April 19, 2012.

Adoption of **"Clean Water"** FTP for 2011-2017 enabled the subjects of the Baltic Sea basin to work out regional target programs including measures for development of the water removal and wastewater treatment system aimed at implementation of the tasks of the HELCOM Baltic Sea Action Plan with regard to reducing the biogenic load on water bodies.

- Clean Water of Leningrad region for 2011-2017;
- Long-term regional target program "Integrated Development of the Water Supply and Water Disposal Infrastructure in Novgorod Region for 2011-2015";
- Long-term regional target program "Provision of the Population of the Republic of Karelia with Drinking Water" for 2011-2017.

The Ministry of Natural Resources of Russia has now developed the draft State Program of the Russian Federation **"Restoration and Use of Water Resources".** The program provides for measures aimed at conservation and restoration of water bodies on the basis of reduced anthropogenic load on water bodies, including through construction and modernization of treatment facilities, application of a progressive scale for above-limit discharges of pollutants. Besides, the program provides for monitoring of the condition and use of water bodies in places beyond the range of the state observation network (within the framework of fulfillment of government assignments by the federal budgetary institutions under the jurisdiction of the Federal Agency for Water Resources).

The Ministry of Natural Resources of Russia has started developing a draft federal target program for elimination of the damage to the environment accumulated as a result of the former business activities.

International financial organizations and projects

A substantial financial support for implementation of the tasks of the HELCOM BSAP has been rendered by international financial institutions and government structures of Baltic states in the form of grants, loans and credits:

- Northern Dimension environmental partnership (NDEP);
- Nordic Environment Finance Corporation (NEFCO);
- European Bank of Reconstruction and Development (EBRD);
- Nordic Investment Bank (NIB);
- Ministry of Environmental Protection of Finland;
- Ministry of Agriculture of Finland;
- Swedish International Development Cooperation Agency (SIDA);
- John Nurminen Fund.

Chapter 3. Eutrophication

3.1. Elaboration of Schemes of Integrated Use of Water Bodies (SKIOVO)

The program of measures of the ***Water Strategy of the Russian Federation in 2009-2015*** involves elaboration of the SKIOVO analogous to the Schemes of Water Basins Management of the EU Framework Water Directive.

The SKIOVO contains, inter alia, complete characteristics of the river basin, including assessment of the scope of the river basin development (land use structure, discharges from point sources, load from diffuse sources), assessment of pollution of the water bodies (in terms of chemical and bacteriological indicators), integral assessment of the ecological condition of the river basin, permissible discharge norms (PDN) of pollutants, target indicators of the condition of water bodies and river basin for short-term and long-term periods in accordance with the requirements of the Russian legislation.

The SKIOVO provides for a plan of measures to achieve the target water quality indicators recommended for inclusion into the federal, regional, departmental programs and various plans being elaborated.

Besides, norms of permissible impact of pollutants (PIN) are calculated for water-resources regions with regard to input of chemical substances, microorganisms, radioactive substances with account for the dynamics of the volumes of water intake and waste water discharge, dynamics and structure of the mass of pollutants discharge.

The SKIOVO and PIN were worked out with participation of the federal executive authorities of the Russian Federation as well as state authority bodies of subjects of the Russian Federation.

Draft SKIOVO have been currently elaborated for the following basins:

- the Neva river (within the territory of Saint Petersburg and Leningrad region), including the Volkhov and the Svir;
- the rivers of the basin of Ladoga Lake and Onega Lake;
- the Narva river and the rivers of Pskov-Peipus Lake basin;
- the Neman river and other rivers of the Baltic Sea basin of Kaliningrad region (the Pregolya, the Instruch, the Pissa, the Angrana, the Lava, the Mamonovka, the Deima, the Sheshupe and other small rivers);
- the West Dvina river (Russian part of the basin):
- rivers of Karelia (Russian part of the Baltic Sea basin).

Draft SKIOVO are being worked out for the following basins::

- the Luga river and the rivers of the basin of the Gulf of Finland (from the northern boundary of the Luga river to the southern boundary of the Neva river).

Public consultations are being currently held on the elaborated draft SKIOVO and PIN; they will be further submitted for state ecological expert evaluation. After the

positive state expert conclusion they will be approved by the Ministry of Natural Resources of Russia and forwarded for execution to bodies of state authority and local self-government.

SKIOVO target indicators. Nutrient substances

The SKIOVO set target water quality indicators of a water body (values of physical, chemical, radiation, microbiological characteristics of water) that are to be achieved within the set periods: short-term (5 years) and long-term (10-20 years). Achievement of these indicators will allow improvement of aquatic environment and bringing the water quality indicators into conformity with the standard requirements according to the target use of the water bodies. The list of the target water quality indicators is determined based on the key problems of the particular water body.

For the water bodies of the basins being considered the short-term target indicators (STI) are set based on the principle of non-deterioration of the existing ecological condition of water bodies resulting from the present conditions of business activities and the level of water-protecting measures. For the water catchment areas under consideration the STI value is equal to the permissible impact norm of input of chemical substances for the water body (PINchem) for the conditions of the lowest flow regime.

Long-term target indicators (LTI) are proposed to be set with account for the stagewise implementation of the planned water-protecting measures for the period of 10-15 years. The criterion of sufficiency of the load reduction rate for the design areas in the long term is the conditions of PIN recalculation in terms of the fishery MAC and in some cases – in terms of regional Ссф norms (the value of indicators of the water quality formed under the influence of the natural factors typical of a particular region and not harmful for the existing ecological systems that is not to be reduced).

Achievement of LTI depends on compliance with PINchem calculated using the criteria of the most stringent requirements to water bodies for fishery purposes.

Table 1 gives examples of target water quality indicators in terms of nutrient substances stated in the draft SKIOVO.

Table 1 Target water quality indicators in terms of nutrient substances

Draft SKIOVO for the basin	Number of the design water economic area (water body)	Value of the short-term target indicator for 5 years (STI), tons per year				Value of the long-term target indicator for 10-15 years (LTI), tons per year			
		Ptot	Ntot	N-NH4	N-NO2	Ptot	Ntot	N-NH4	N-NO2
The Neva river and	(Ladoga Lake)	24.4[1]	487[1]	-	-	Not available			

[1, 3] - The Methodological Instructions for calculation of permissible norms of impact on a water body of 2007 do not provide for methods of calculating PINchem directly for the water area of lakes.
Therefore, calculation of the value of short-term target indicators for Ladoga Lake and long-term target indicators for Pskov Lake and Peipus Lake (3) is based on compliance with the HELCOM recommendations for treatment of municipal wastewater of towns and populated localities down to concentrations of 0.5 mg/L for total phosphorus and 10 mg/L for total nitrogen coming with water courses and direct discharges into lakes.

Draft SKIOVO for the basin	Number of the design water economic area (water body)	Value of the short-term target indicator for 5 years (STI), tons per year				Value of the long-term target indicator for 10-15 years (LTI), tons per year			
		Ptot	Ntot	N-NH4	N-NO2	Ptot	Ntot	N-NH4	N-NO2
rivers of the basin of Ladoga Lake and Onega Lake (Saint Petersburg, Leningrad region)									
The Narva river and rivers of the basin of Pskov-Peipus Lake	6 (Pskov Lakeepo)	56.1[2]	1409[2]	586[2]	27.5[2]	24.5[3]	470[3]		
	8 (Peipus Lake)	0.04[2]	481[2]	0.25[2]	0.02[2]	0.45[3]	8.97[3]		
	1 (the Velikaya river from the source to Opochka town) p	0.006		0.09	0.005	0.006		0.09	0.005
	2 (the Sorot from the source to Osinkino village)	0.001		0.04	0.002	0.001		0.04	0.002
	3 (the Velikaya from Opochka town to the waterfall of Guitovo village)	0.08		1.24	0.06	0.08		1.24	0.06
	4 (the Velikaya from Guitovo village to the estuary)	1	1245	16	0.8	1		16	0.8
	5 (Water bodies of Pskov Lake basin to the Russian-Estonian border without the Velikaya river)	0.01	164	0.19	0.01	0.01		0.19	0.01
	7 (Water bodies of Peipus Lake basin)	0.02	481	0.25	0.02	0.02		0.25	0.02
	9 (the Narva from the source to the Narva reservoir)	1.66	80	33.9	1.92	1.66		33.9	1.92
	10 (Right-bank tributaries of the Plyussa river within Leningrad region)	0.004	-	0.07	0.004	0.004		0.07	0.004
	11(the Plyussa within Pskov region)	9.36	436	177	11.3	9.36		177	11.3
	12 (the Plyussa within Leningrad region as far as Slantsy town)	0.01		0.21	0.01	0.01		0.21	0.01
	14 (the Narva from Narva HPP to the estuary)	0.3		4.73	0.24	0.3		4.73	0.24

[2] - Calculation of the value of short-term target indicators for Pskov Lake and Peipus Lake is based on the aggregate load from point sources on these lakes in terms of the accepted PINchem values.

Permissible impact norm of the introduce of chemical substances into the water body (PINchem).

PINchem is designed to set safe levels of pollutants content as well as other indicators characterizing the impact on water bodies with account for the natural-climatic specific features of the water bodies of the particular region and resulting from the economic activities of the natural-technogenic situation. The permissible impact norms designed to regulate the kinds of the impact on the water bodies are determined based on the purpose of the water body under consideration. The purpose of the water body or its part (or priority use of the water body), in its turn, is determined by the effective legislation of the Russian Federation.

Calculation of the PINchem for water courses is based on the Methodological Instructions for elaboration of the norms of permissible impact on water bodies approved by the Order of the Ministry of Natural Resources and Ecology of the RF dated 12.12.2007 and is performed by the method of material balance of the flows of dissolved solids and water masses, with water masses being calculated according to the scheme given in Figure 1.

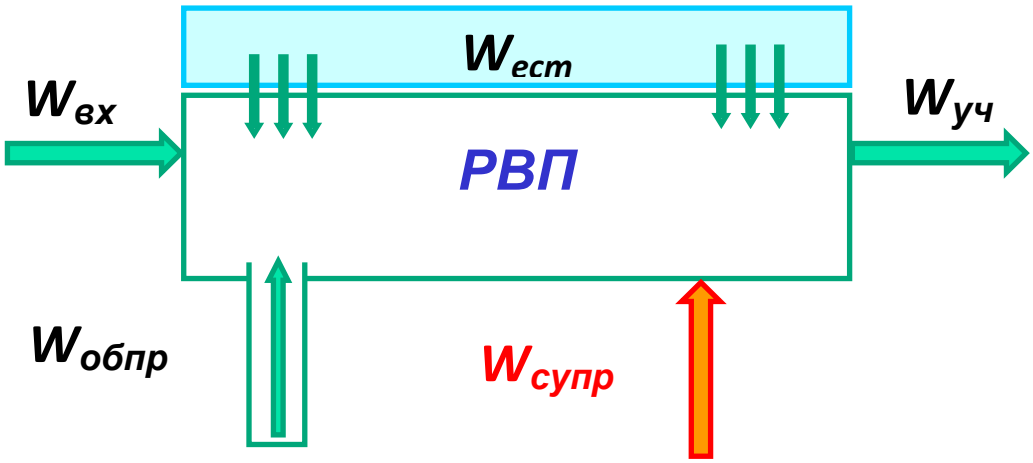


Рисунок 1 – Scheme of balance of water mass flows

The balance formula of calculation of the permissible impact norm of chemical substances input is as follows:

$$PINchem = C_{нр}W_{уч} - \Sigma(C_{нр} W_{ест} + C_{нвх} W_{вх} + C_{нобпр} W_{обпр}), \quad (1)$$

where Wуч – the total runoff in the water-resources region to the outlet over a certain design period determined according to the formula:

$$W_{уч} = W_{ест} + W_{супр} + W_{вх} + W_{обоспр} = W_{бпр} + W_{ндиф} + W_{супр} + W_{вх} + W_{обпр}, \quad (2)$$

where Wест – the volume of the local runoff within the design region, the calculation formula is:

$$W_{ест} = W_{бпр} + W_{ндиф}, \quad (3)$$

where Wбпр – the volume of the intermediate inflow from the regions not subject to the anthropogenic impact, that is not identified as a separate waterway area;

Wндиф – the volume of intermediate inflow in regions with uncontrolled diffuse pollution sources;

Wсупр – the volume of water disposal, including point and potentially controlled diffuse pollution sources;

Wвх – the volume of the runoff coming from the upstream water-resources region;

Wобпр – the volume of the runoff coming with first-order tributaries separated into independent design regions with their own norms of the water quality of the water body;

Снр, Снвх, Снобпр – water quality standards for the upstream water-resources region under consideration and the tributary identified as a separate water-resources region, respectively.

Depending on the combination of the conditions, actual condition and use of the water body the following values can be used as the water quality standards:

- maximum allowable concentrations for chemical substances in the water of the water bodies of the household and amenity water use (hygienic MAC);
- maximum allowable concentrations for chemical substances in the water of the water bodies of fishery use (fishery MAC);
- approximate permissible levels (APL) of chemical substances in the water of the water bodies of drinking and domestic (household) and recreational (amenity) water use;
- approximate safe levels of impact (ASLI) of harmful substances in the water of the water bodies for fishery purposes;
- standards of maximum allowable concentrations of chemical substances specified in accordance with the indicators of the maximum allowable content of chemical substances in the environment, with the failure to comply with them resulting in pollution of the environment, degradation of the natural ecological systems (recommended for application to substances of double genesis).

Draft PINchem have been currently developed for the following basins:

- the basin of the Neva river (without the basins of Ladoga Lake and Onega Lake)
- the basins of Ladoga Lake and Onega Lake (including the basins of the Volkhov and the Svir)
- the basin of the Narva river and the basins of the rivers of Pskov-Peipus Lake
- the basin of the Luga river and the rivers off the basin of the Gulf of Finland (from the northern boundary of the Luga to the southern boundary of the Neva)
- rivers and lakes of the basin of the Gulf of Finland (from the border of the Russian Federation to the northern boundary of the Neva basin)

- the basin of the Neman river and the river of Kaliningrad region of the Baltic Sea basin

Table 2 PINchem values for particular basins of rivers and lakes

Basin (water body)	Design water-resources region	PINchem value for total phosphorus, tons per year	PINchem value for total nitrogen, tons per year
(PINchem value for the most unfavourable conditions)			
Ladoga Lake		24.4	487
Onega Lake		29.3	585
the Neva basin	the Chernaya river	0,0263	Forms of nitrogen are only present
	the Mga river	0.430	
	the Neva river from the source to Pavlovo settlement (0.5 km downstream from the influx of the Mga river)	2.47	
	the Tosna river	0.26	
	(the Neva river without the Tosna river from Pavlovo settlement (0.5 km downstream from the influx of the Mga river) to the station 0.5 km downstream the Tosna river estuary)	0.10	
	the Izhora river within the limits of Leningrad region	1.27	
	the Izhora river within the limits of Saint Petersburg	0.55	
	the Neva river without the Izhora river from the station 0.5 km downstream the Tosna estuary to the station 0,5 km downstream the Izhora estuary for the year	0.15	
	the Slavyanka river within the limits of Leningrad region	0.97	
	the Slavyanka river within the limits of Saint Petersburg	0.30	
	the Neva river without the Slavyanka from the station 0.5 km downstream the Izhora estuary to Novosaratovka	0.508	
	the Okhta river within the limits of Leningrad region	0.18	
	the Okhta river within the limits of Saint- Petersburg	0.85	
	the Neva river from Novosaratovka to the station 0.5 km downstream the Okhta estuary	2.08	
	the Neva river from the station 0.5 km downstream the Okhta estuary to the station 0.1 km upstream Liteiny bridge	4.37	
	the Neva river from the station 0.1 km upstream Liteiny bridge to the estuaries of the delta arms	8.32	
the Narva		Nutrients substances	

river basin		were not included in the draft PIN

Implementation of SKIOVO measures and compliance with PINchem

The draft SKIOVO provide for a number of actions to achieve the target water quality indicators in water bodies, including reduction of input of biogenic substances.

Table 3 gives the list of actions to achieve the target indicators stated in SKIOVO

Table 3

No.	Basin (draft SKIOVO)	Actions
1	The Neva and rivers of the basins of Ladoga Lake and Onega Lake	1. Measures to restore and develop the observation networks to monitor the hydrological conditions and state of the water bodies and water-resources systems, including provision with modern equipment, including: • Construction works for re-equipment of the working hydrological stations; • Survey and construction works for equipment of new hydrological stations; • Re-equipment of hydrological stations with modern devices; • Creation of mobile hydrological laboratories. 2. Measures for integrated development of the system of state monitoring of quality indicators of the condition of water bodies, including: • Increased frequency of observations at the existing stations of hydrochemical observations (OS) from seasonal to monthly; • In areas of the water bodies receiving large volumes of sewage it is necessary to supplement the list of the identified water quality indicators with ingredients typical of the specific composition of waste water in the particular water-resources region based on the analysis of the materials of 2TP-vodkhoz. 3. Measures to develop the water disposal system of Saint Petersburg, including: • Ensuring guaranteed acceptance of all waste water to be treated from housing facilities, community facilities, industrial and municipal facilities, transport infrastructure facilities, their transport and treatment to meet regulatory requirements with subsequent return to the natural ecosystems of water bodies; • Increased aggregate productivity of working sewage treatment facilities of Saint Petersburg up to 4 mln. 85 ths. cubic m of waste water per day by 2025 with account for the existing and future needs of Saint

No.	Basin (draft SKIOVO)	Actions
		Petersburg consumers. Construction of new and reconstruction of existing sewage pumping stations; • Reconstruction of existing and construction of new tunnel sewers of sufficient capacity. Construction of backup sewers and cross-manifold sewers of water disposal basins allowing redistribution of the load among treatment facilities in emergency situations. Implementation of programs of increased reliability of tunnel sewers; • Completion of construction of the trunk sewer of the northern part of Saint Petersburg; • Termination of discharge of untreated waste water into water bodies by implementation of the program of direct discharge switching; • Construction of new sewerage facilities and reconstruction of existing ones using modern technologies restoring their integrity and capacity; • Construction of system of overland runoff regulation with stagewise acceptance of overland runoffs for treatment in areas with separate sewerage systems; • Introduction of equipment for waste water disinfection;. • Implementation of measures to improve the culture of sewage use in housing facilities, municipal complex and industry of Saint Petersburg and reduction of irrational use of drinking water; • Reduction of the negative impact of water disposal facilities of Saint Petersburg on the natural environment; 4. Measures to develop the water disposal system in Leningrad region by: • Reconstruction or complete replacement of 184 sewerage treatment facilities; 5. Measures to reduce diffuse pollution from agricultural enterprises of Leningrad region • Construction of facilities for dung and manure disposal.
2	The Narva river and rivers of Pskov-Peipus Lake basin	1. Measures to reduce input of biogenic substances from point sources by: • Construction and reconstruction of water disposal facilities under the supervision of municipal bodies achieving, inter alia, HELCOM recommendations; • Termination of discharge of untreated waste water by 2015; 2. Measures to reduce input of biogenic substances from diffuse sources by:

No.	Basin (draft SKIOVO)	Actions
		• Creating incentives for use of the best available technologies of manure/dung management at the enterprises of the agricultural-industrial complex; • Creating incentives for application of small quantities of fertilizers and pesticides; • Providing support to the best available technologies in agriculture, development of "ecologically clean" agriculture; 3. Measures to modernize and expand the system of monitoring of surface water bodies both at the federal and local levels with account for international requirements: • Increased frequency of observations at the existing stations of hydrochemical observations (OS) from seasonal to monthly; • In areas of the water bodies receiving large volumes of sewage it is necessary to supplement the list of the identified water quality indicators with ingredients typical of the specific composition of waste water in the particular water-resources region according to the table based on the analysis of the materials of 2TP (vodkhoz). It is recommended to include total phosphorus into the controlled parameters of hydrochemical monitoring at all design water-resources subregion; • In places of discharge of large volumes of waste water (especially downstream of towns) it is necessary to ensure control of water quality in sections of sufficient mixing (not less than 80%) in terms of hydrological-hydrodynamic criteria, which allows to avoid the influence of transverse hydrochemical nonuniformity on assessment of the pollution of river flows and sizes of the pollutants runoff.

These measures will be implemented by inclusion into federal, regional, departmental and municipal programs.

In drawing up the program of the SKIOVO measures for the aforesaid water body's account was taken of all the effective programs and plans of measures of the Russian Federation and subjects of the RF as well as international multilateral and bilateral agreements.

Some measures are already being implemented within the framework of the effective target programs. The measures to develop the water disposal system of Saint Petersburg are being implemented within the frames of the effective General Scheme of Water Disposal of Saint Petersburg for the period until 2015 with account of the prospect

until 2025. The measures to develop the state observation system of monitoring in the Narva river basin are implemented within the framework of the FTP “Development of the Water-Resources Complex of the Russian Federation in 2012-2020”. Some measures of construction and reconstruction of municipal treatment facilities are implemented within the frames of “Clean Water” federal target program and related regional long-term target programs of “Clean Water” of Pskov region and Leningrad region for 2011-2017.

The aforesaid measures largely provide for reduction of the biogenic load from municipal treatment facilities.

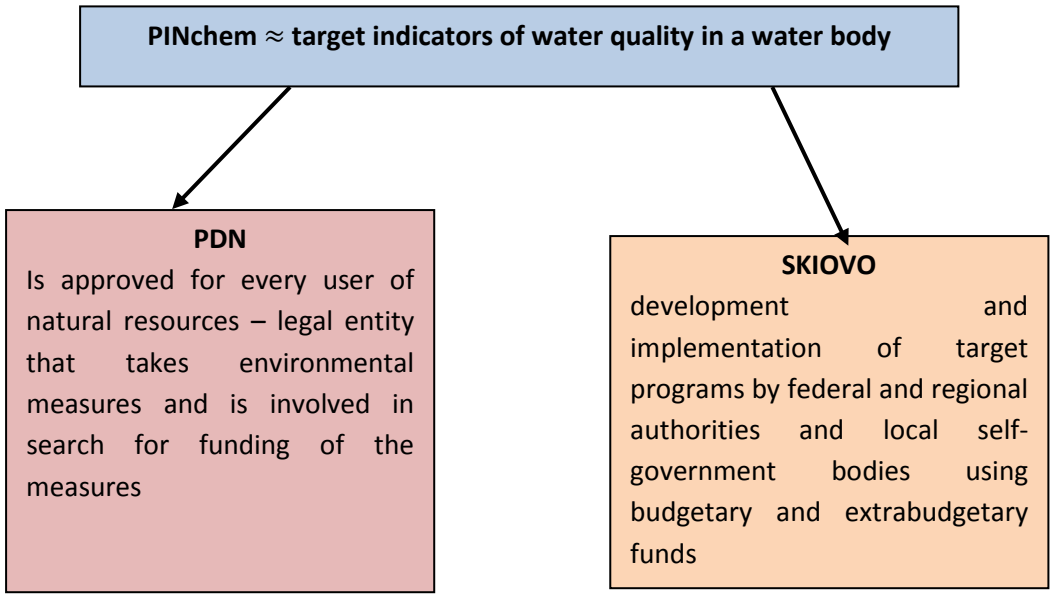
To regulate and reduce the biogenic load from users of natural resources use is made of the permissible discharge norm (PDN) calculated for a particular user of natural resources (enterprise).

The PDN is calculated on the basis of PINchem. The sum of all PDN in the water-resources region should not exceed th identified PIN for the particular water-resources region.

$$\mathbf{PDN_1 + PDN_2 + \ldots\ldots PDN_n \leq {}_{PIN}chem}$$

The PDN are approved by the Federal Water Resources Agency subject to approval by the Federal Service for Hydrometeorology and Environmental Monitoring, the Federal Service for Supervision in the Sphere of Protection of Consumer Rights and Human Well-being, the Federal Agency for Fisheries and the Federal Service for Ecological, Technological and Nuclear Supervision on the basis of water users’ suggestions prepared in accordance with the norms of permissible impact on water bodies (PIN).

Based on the PDN the user of natural resources takes a number of measures at its option to comply with the permissible discharge norms.



3.2. Municipal waste water treatment plants

3.2.1. Saint Petersburg

In the late 1970ies Leningrad (Saint Petersburg) practically had no treatment facilities. At the time Leningrad was considered the largest source of pollution in the Baltic Sea catchment area (3.5 mln. cubic meters of untreated waste water were daily discharged into the Neva and the Gulf of Finland) but by the end of 2012 the volume of treated waste water in Saint Petersburg was already 97%.

The measures aimed at solution of the tasks of the HELCOM Baltic Sea Action Plan were implemented within the framework of the Federal Target Programs, the programs of the Government of Saint Petersburg, programs of implementation of the Strategy of Social-Economic Development of the Northwest Federal district for the period until 2020 approved by the Government of the Russian Federation no. 2074-r dated November 18, 2011 within the framework of international projects with financial support of the Northern Dimension Environmental Partnership, international financial institutions, John Nurminen fund.

Large work has been carried out in construction of the trunk sewer (siphon) of the northern part of the city being a most complex aggregate of engineering structures unrivalled in the world. Commissioning of the trunk sewer allowed elimination of 67 direct discharges of untreated waste water of the total volume of 246 ths. m^3/day in the period from 2008 till 2012 and to bring the volume of the treated waste water to 97.1 %.

Upon completion of the 3rd stage of construction of the trunk sewer 7 small low-efficiency sewage treatment facilities were closed in the suburbs of Saint Petersburg: WWTP “Pesochny 1”; WWTP “Pesochny 2”; WWTP “Osinovaya Roshcha”; WWTP “Zavodskie”; WWTP of Pargolovo settlement; WWTP “Prigorodnye” with waste water of 2,100 m^3/day switched over to the Northern aeration station.

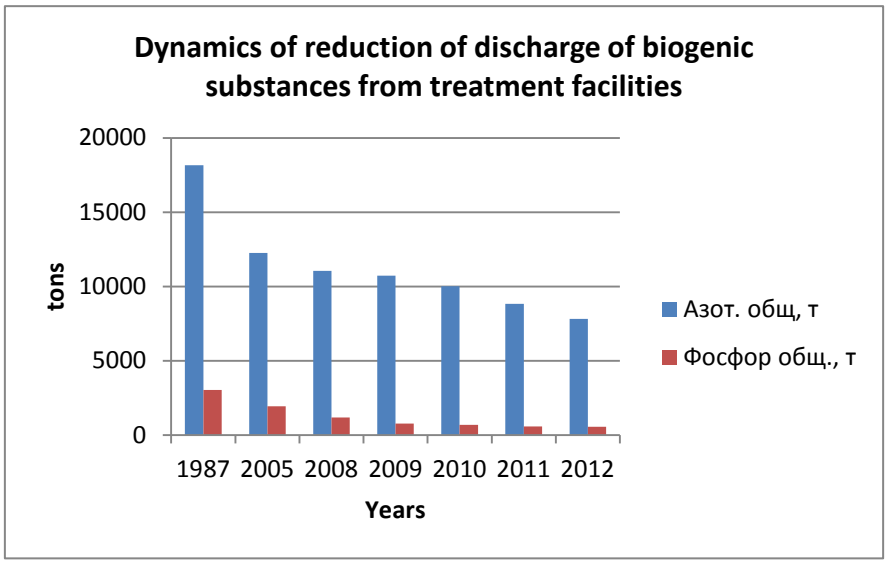
Completion of construction of the trunk sewer is scheduled for October 2013, which will allow bringing the volume of treated waste water of the city to 98.4%. This is one of the highest indicators among megalopolises in the world.

With participation and financial support of the **John Nurminen Fund** the technology of deep removal of biogenic substances has been and is being implemented in **Saint Petersburg**.

Introduction of this technology enabled SUE “Vodokanal of Saint Petersburg” to ensure implementation of the HELCOM Recommendation starting from June 2011 ahead of schedule and in full volume: the phosphorus content in the total discharge of the city’s waste water does not exceed 0.5 mg/L. Only Helsinki and Stockholm have been able to achieve such results.

Over the period of 2005-2012 the discharge of total nitrogen with treated waste water dropped **by 4,137 tons, the discharge of total phosphorus dropped by 1,372 tons.**

Over the period of 2006-2013 16 “sub-points” out of 18 “hot spot” No. 18 of JCP Program were closed.



Dynamic of reduction of nutrient discharges from Saint Petersburg WWTPs (1987—2012 years)

Considering long-term growth of the city territories, lack of reserve of capacities of sewage treatment facilities to ensure guaranteed treatment of all municipal waste water as well as reliability and ecological safety of operation of the municipal sewage system the Government of Saint Petersburg approved **the "Clean Water of Saint Petersburg" Regional Program for 2011-2025** on **24.05.2011.**

Completion of construction of continuation of the trunk sewer in the northern part of Saint Petersburg in 2013, intercepting pipelines with elimination of direct discharges will allow to close 1,040 direct rain discharges and waste water discharges from production facilities by 2015.

Construction of new modern sewage treatment facilities in Metallostroy settlement and Lomonosov with introduction of deep removal of nutrients to achieve HELCOM standards and waste water disinfection will allow development of the territories and housing construction of Saint Petersburg.

There are plans of eliminating dump wells on the territory of low-rise residential area of Saint Petersburg with provision of centralized water disposal systems of the total length of 1,200 m and pumping of waste water to WWTPs.

There are plans for construction of cross-manifold sewers and standby sewers, which will result in increased throughput capacity of sewerage networks and improved engineering-technical support.

The plans include modernization and expansion of operating WWTPs for acceptance of waste water for treatment from the territories of Severnaya Dolina, Novo-Orlovsky forest park, territories of Pushkinsky, Petrodvortsovy and Kolpinsky districts of Saint Petersburg.

The plans involve introduction of the technology of sewage sludge processing to receive biogas with further electric power generation at the Northern aeration station, the Central aeration station and the WWTP of Metallostroy settlement.

Saint Petersburg will reconstruct sewage networks and tunnel sewers.

3.2.2. Leningrad region

The tasks of the Baltic Sea Action Plan in the construction sector and modernization of sewage treatment facilities on the territory of Leningrad region are implemented with the funds of the federal, regional, local budgets and extrabudgetary sources.

The measures of construction and reconstruction of WWTPs are implemented within the frames of the following programs:

1. Departmental target program "Support of the Reform of the Municipal Housing Economy of Leningrad region for 2008-2010" (approved by the order of the Committee for the Power Complex and Municipal Housing Economy of Leningrad region No. 86 dated 01.10.2008)

2. Long-term target program (LTP) "Social Development of Village for 2009 – 2012" (approved by the Resolution of the Government of Leningrad region No. 272 dated August 21, 2009);

3. Long-term target program (LTP) "Clean Water of Leningrad region for 2011 – 2017" (approved by the Resolution of the Government of Leningrad region No. 323 dated October 7, 2011).

Within the framework of the departmental target program "Support of the Reform of the Municipal Housing Economy of Leningrad region for 2008-2010" the condition of water disposal and waste water treatment facilities in settlements with the population of less than 10,000 citizens were studied and analyzed.

By the results of the study there are plans to develop the concept of the long-term program for reconstruction and modernization of water disposal and waste water treatment facilities for small towns and settlements in Leningrad region (144 facilities).

The following measures have been implemented within the framework of the long-term target program of "Social Development of Village for 2009-2012":

- design estimate documentation for construction and reconstruction of water supply and disposal facilities for **7 rural settlements** has been developed: Sovkhozny settlement, Klimovo settlement, Staraya Ladoga village, Shcheglovo settlement, Dzerzhinskoye settlement, Zaporozhskoye settlement, Bolshaya Vruda village;
- reconstruction of WWTP in Zaporozhskoye settlement of Priozersk district is underway.

Settlements with the population of between 300 – 2,000 p.e.

- **Berezhki village** of Volkhov district: completed reconstruction of the WWTP of 700 m^3/day capacity.

- **Leninskoye settlement of Vyborg district -** completed modernization of WWTP of the design output of 1,000 m^3/day; the cost of the works was: 90,820,274 RUR.

Settlements with the population of between 2000 – 10 000 p.e.

- **Primorsk town (6.2 ths.)** - reconstructed WWTP with increased capacity and improved treatment quality to comply with the HELCOM Recommendation 28 E/5. The cost of the WWTP reconstruction in Primorsk was 103 mln. RUR. It was financed from the federal and regional budgets. The multistage biological treatment according to Biolak technology is used on WWTP.

- **Ust-Luga settlement** (**2.5 ths**.) - beginning of implementation of the project on the principles of public-private partnership according to the scheme of concessionary agreement for construction of WWTP and water supply plant (WSP). Construction of municipal WWTP is provided for by the regional program of "Clean Water of Leningrad region" and included into the federal target program "Clean Water" for 2012-1017. At present the design works have been performed. The construction is scheduled to be completed at the end of 2013. The cost of the project is 155 mln. RUR; the source of financing is the federal and regional budges.

- **Taitsy settlement (2.8 ths.)** the works of WWTP construction have been completed by 90% and the works for equipment installation have been fulfilled by 80%. Works have been completed involving construction of external water supply and sewerage networks, sewer of household waste water, two fire reservoirs, installation of a combined complex of surface water treatment.

Settlements with the population of between 10 000 – 100 000 p.e.

- **Kirovsk** (**26,5 ths.**) Design documentation for WWTP reconstruction has been updated.

- **Otradnoye (23,8 ths.)** Working documentation for reconstruction of WWTP has been developed. .

- **Tosno (40 ths.)** Works to reconstruct the WWTP were underway sludge pumping station). Expenses in 2011 were 36,408.604 ths. RUR. and 47,205.9 ths. RUR in 2012.

- **Sertolovo (47,5 ths.) –** Waste water in Sertolovo was switched over to the Northern aeration station of Saint Petersburg, which allowed reduction of the discharge of untreated waste water from Sertolovo to Razliv Lake by **58.8%**.

International projects and programs

Sosnovy Bor (≥ 60 000 residents) - Reconstruction of WWTP has been completed with introduction of deep removal of phosphorus from waste water.

Financing was provided by Vodokanal, the town's municipality, NEFCO, the Ministry of the Environment of Finland and "Northern Dimension" Ecological Partnership (NDEP).

The total cost of the project was 3.3 mln. EUR, including:

— Budgetary funds – 1.37 mln. EUR;

— NEFCO credit - 750 ths. EUR;

— NDEP grant - 500 ths. EUR

— Grant of the Ministry of the Environment of Finland - 680 ths. EUR.

Implementation of the project will allow 22 ton reduction of the annual volume of phosphorus discharge into the Baltic Sea water area. According to NEFCO data, a similar investment project in Northern Europe to reduce phosphorus discharge in comparable volumes would cost ten times more.

Program of municipal ecological investments of NDEP for Leningrad region

Within the Program of municipal ecological investments of the Northern Dimension Ecological Partnership (NDEP) STF modernization works are underway in the following towns: **Gatchina (95.0 ths. residents), Kirovsk (26.5 ths. residents), Pikalevo (≥ 20 ths. residents), Tikhvin (≥ 50 ths. residents)** with attraction of foreign investments and credits, budgetary funds of Leningrad region, municipal budgets and Vodokanal's own resources.

The total volume of foreign investments is 23.3 million EUR, including:

— Loans of the Nordic Investment Bank (NIB) – 5.3 million EUR;

— NDEP grant - 4 million EUR;

— Grants of NEFCO, DEPA, SIDA (Sweden), the Ministry of Environmental Protection of Finland – 9.3 million EUR.

Implementation of this project in four towns of Leningrad region – Gatchina, Kirovsk, Pikalevo and Tikhvin – will result in modrnization of the existing treatment facilities with increased capacity and bringing the quality of the treated waste water to comply with the Russian legislation and HELCOM Recommendation 28E/5 "Municipal Waste Water Treatment".

A special company – Leningrad Regional Communal Systems OJSC (LRCS) - was established for implementation of the project. It is the central body of implementation of the program as well as the client under the NIB loan and the beneficiary of the NDEP grant for all four towns. The projcet is close to completion now.

The reconstruction will result in:

- reduced volume of discharge of untreated waste water into water bodies;
- reduced nutrients discharges with treated waste water;
- lower operation costs as a result of replacement of the inefficient obsolete

equipment.

Within the framework of the Northern Initiative International Program reconstruction of the main sewage pumping station and the trunk sewer has been completed in Gatchina; the plant of mechanical sludge drying has been launched at the town's treatment facilities.

Within the framework of **BASE** international project the specialists of SUE "Vodokanal of Saint Petersburg" developed the program of creating a model project to solve the problem of waste water collection and treatment from small settlemets: 150 – 2000 people. The pilot territory is the scattered settlements on Valaam Island of Leningrad region. Implementation of this project will allow creation of a model solution to reduce biogenic input from scattered settlements – a substantial source of nutrients input into the Baltic Sea.

The framework of the long-term target program (LTP) "Clean Water of Leningrad region" for 2011 – 2017 includes plans, inter alia, of construction and reconstruction of waterdisposal facilities:

- 19 sewage treatment facilities;
- 6 facilities – sewerage pumping stations and sewage networks;
- Creation of the water supply and water disposal system within the framework of implementation of the General Scheme of water supply and water disposal approved by the Resolution of the Government of Leningrad region No. 323 dated October 21, 2008, including:
  - ✓ construction of Ladoga intake of the capacity of 275 ths. m^3/day;
  - ✓ construction of a water conduit 178 km long;
  - ✓ construction of water treatment facilities;
  - ✓ construction of intermunicipal WWTP in the area of Murino settlement (50 ths. m^3/day) and in the area of Manushkino settlement (180 ths. m^3/day);
  - ✓ construction of sewers 128 km long.

The total volume of financing of the Program is 67,027,882.00 ths. RUR, including:

- federal budget 432,809.50 ths. RUR,
- regional budget – 2,219,354.00 ths. RUR,
- budgets of municipal entities - 979,896.50 ths. RUR,
- extrabudgetary sources – 63,395,822.00 ths. RUR.

At present 14 water supply and water disposal facilities have been financed for the amount of 435 mln. RUR. Long-term target program.

3.2.3. Kaliningrad region

There are 168 treatment facilities of enterprises and public utilities working in Kaliningrad region.

Most treatment facilities belong to industrial and food processing enterprises and organizations.

Municipal waste water treatment plants of some towns (Bagrationovsk, Gurievsk, Nesterov, Yantarny, Gvardeisk) do not provide the design regime of waste water treatment due to hydraukic overload, use of outdated technologies and obsolete equipment. Most rural settlements as well as small town lack treatment facilities or are not operating.

Measures of construction and reconstruction of MWWTP are implemented within the frames of the following programs:

— federal target program of development of Kaliningrad region for the period until 2014 fundd from the federal and regional budgets as well as extrabudgetary sources (extended until 2018 with preserved volumes of annual financing of the measures at the level of 6-7 bln. RUR, including measures for development of the system of water disposal and waste water treatment);

— program of the Government of Kaliningrad region "Ecological Improvement of the Territory of Kaliningrad region for 2008 – 2013".

Settlements with the population of between 300 – 2000 p.e.

In 2008 – 2013 the sewerage system was laid in Kosa settlement of the total cost of 40,293 ths. RUR.

Settlements with the population of between 2000 – 10000 p.e.

In August 2011 treatment facilities of 1,500 m^3/day capacity were put into operation in ***Pravdinsk***. The total construction cost in 2003-2011 was 102,674 ths. RUR. In May 2013 a sewage pumping station and a sewer crossing the Lava river with the total cost of 14, 811 ths. RUR were put into operation.

In June 2012 WWTP was put into operation in ***Krasnoznamensk***. The total volume of investments in 2008-2011 was 25,855 ths. RUR.

In December 2012 WWTP with 1,500 m^3/day capacity was put into operation in ***Polessk***. The total volume of investments was 61,420 ths. RUR.

Works of reconstruction of WWTP are at the completion stage in ***Bagrationovsk*** of the total cost of 250,492 ths. RUR as well as construction of a sewerage pumped sewer of 64,161 ths. RUR.

In 2009 – 2012 works were performed for construction of WWTP in ***Ozerki settlement*** of Gvardeisk district. At present documents are being prepared for obtaining the permission to put the facilities into operation.

Settlements with the population of between 10,000 – 100,000 p.e.

- **Baltiysk -** in 2008 a sewer was put into operation. The cost of the works was 25,135 ths. RUR. In 2011 laying of a storm water runoff network was completed, the cost was 84,806 ths. RUR.

- **Pionersky** - in 2009 sewage lines were laid to the residential buildings in Naberezhnaya St., the cost of the works was 4,571 ths. RUR.

- **A. Kosmodemyanovskogo settlement** - in 2009 works were completed for construction of storm water sewage network in Kartashova street of Kaliningrad. The total cost was 41,039 ths. RUR.

- **Ilyushino settlement** of Nesterov district - in 2011 a system of post-treatment of the waste water from swamp-type (vegetative) treatment facilities was installed. The cost of the works was 4,128 ths. RUR.

- **Gusev –** in October 2012 new WWTP was put into operation. The cost of construction work was 272,428 ths. RUR.

- **Gurievsk –** in March 2013 reconstruction of WWTP was completed. The cost of the works was 241,805 ths. RUR.

- **Bolshoye Isakovo settlement of Guriev district –** completed construction of WWTP of 2,500 m^3/day capacity. (The 1^{st} stage of WWTP construction is 1,500 m3/day.). The total cost of the works was 118,599 ths. RUR.

- **Sovetsk –** construction of integrated WWTP of 25,000 m^3/day capacity is supposed to be completed in December 2013. The cost of the works is 1,081,069 ths. RUR.

- **Svetly** – construction of WWTP of 9,000 m^3/day capacity is underway. The cost of the works is 450,259 ths. RUR

- **Chkalovsk settlement** – reconstruction of the central sewage pumping station (CCPS) was completed in June 2013. The cost of the works was 21,778 ths. RUR.

The Government of Kaliningrad region has assumed obligations to build new treatment facilities in **Baltiysk and Ozerki** with the estimated cost of about 10 mln. EUR. STF construction was started in **Chernyakhovsk**.

Implementation of the international project of “Program of Reconstruction of Water Disposal Networks and Facilities in Small Towns of Kaliningrad Region” continues. The Nordic Ecological Finance Corporation (NEFCO) and Kaliningrad OSTF Water Company have signed an agreement on modernization of the system of treatment of the waste water of the towns situated on the Baltic Sea coast, Svetlogorsk, Pionersky and Zelenograd. The objective of the project is development of waste water collection and treatment capacities ensuring compliance of the purification rate with the HELCOM standards.

Settlements with the population of above 200,000 p.e.

Kaliningrad

Construction of new WWTP of **Kaliningrad** is at the stage of completion. The capacity is 150 ths. m^3/day and the waste water purification rate will be brought to comply with the standards of HELCOM Recommendation 28E/5 "Municipal waste water treatment". The construction was financed with the funds of **the European Bank of Reconstruction and Development**. The equipment for the treatment facilities is purchased under the **EBRD** program with observance of the international tender procedures with the grants of **SIDA** and **NDEP**.

The WWTP in Kaliningrad are supposed to be put into operation in December 2013. The cost of the works is 1,359,018 ths. RUR.

In 2011-2013 a pumped sewer from the CCPS in Chkalovsk settlement to Rybnikov street in the Central district of Kaliningrad was built. The cost of the works is 40 778 ths. RUR. The scheduled commissioning time is July 2013.

Works are underway for construction of engineering networks for the south-eastern residential district of Kaliningrad, their cost being 1,073,420 ths. RUR. A sewer is supposed to be put into operation in October 2013. The cost of the works is 559,746 ths. RUR.

3.2.4. Novgorod region

The Administration of Novgorod region has adopted the long-term regional target program of "Integrated Development of Water Supply and Water Disposal Infrastructure in Novgorod Region for 2011-2015".

In 2011-2013 construction of biological treatment facilities was completed in Batetsky settlement with the design capacity of 480 m^3/day. 78,013,8 ths. RUR were allocated for these purposes within the federal target program of "Clean Water" and the long-term regional target program, including:

federal budget – 53,723.2 ths. RUR.;

regional budget – 23,076.0 ths. RUR.;

local budget – 1,214.6 ths. RUR..

3.2.5. Pskov region

The Administration of Pskov under the auspices of **the European Bank of Reconstruction and Development** is completing the investment program for the period of 2011-2013 providing for reconstruction of the sewage networks and primary sedimentation tanks at the treatment facilities of Pskov.

To implement the measures to reduce the nutrients load on Pskov-Peipus Lake within the framework of "Estonia – Latvia – Russia" international cooperation the Administration of Pskov region prepared a request for a large scale project: **"Economic and Ecological Sustainability of Peipus Area".** ***The total budget of the project is 8,363 ths. EUR, the grant is 7,526,6 ths. EUR, the co-financing of the Russian part of the project from the budget is 4,160 ths. EUR.*** Implementation of the program will allow reduction of pollutants discharge from the treatment facilities by 80-90%.

A government contract has been signed for implementation of the 1st stage of the project.

3.2.6. Republic of Karelia

In the Republic of Karelia the long-term target program "Provision of the Population of the Republic of Karelia with Drinking Water" was developed and approved by the Regulation of the Government of the Republic of Karelia No. 138-P dated June 14, 2011.

It provides for financing of the program measures from the budget of the Republic, budgets of municipal entities as well as extrabudgetary sources with account of co-financing from the federal budget.

The supposed volume of funding of the long-term program in 2011-2017 from all the sources of financing will be 7,072,224 mln. RUR, including:

- ✓ federal budget - 206.6 mln. RUR;
- ✓ budget of the Republic of Karelia – 137.270 mln. RUR;
- ✓ local budgets – 0.130 mln.RUR.;
- ✓ extrabudgetary sources – 6,728.224 mln. RUR.

The measures for construction and reconstruction of water supply, water disposal and waste water treatment systems provide for use of innovative products ensuring energy saving and higher energy efficiency as well as purchase of Russian equipment, materials and services. The plans for the territory of the Baltic Sea catchment area include the following:

- – building of 28 new WWTPs;
- – laying of the sewage system in 2 settlements;
- – reconstruction of WWTPs in 4 settlements;
- – building of 6 pumping stations;
- – building of units of disinfection of treated waste water at 2 WWTPs.

The plans involve increasing the volume of the waste water passing through the treatment facilities in the total volume of waste water from 85% in 2010 to 95% by 2017.

The share of the waste water treated to the normative values in the total volume of the waste water passing through the treatment facilities is supposed to be increased from 76% in 2010 to 86% by 2017.

On July 9, 2012 the Government of the Republic of Karelia signed agreements for reconstruction of sewage and clean water distribution treatment facilities of Petrozavodsk.

This project will be implemented by joint efforts of RKS OJSC, the Government of the Republic of Karelia, the Administration of Petrozavodsk as well as the Ministry of the Environment of Finland, the Nordic Ecological Finance Corporation (NEFCO), the Nordic Investment Bank and the Northern Dimension Fund of Ecological Partnership.

Completion of the works will require 480 mln. RUR. These funds are expected to be raised in Petrozavodsk with the help of international financial organizations.

Under the signed agreements NEFCO Corporation and the Nordic Investment Bank are ready to provide loans to Petrozavodsk Public Systems OJSC (against the guarantees of the Government of the RK) in the amount of up to 440 mln. RUR. RKS OJSC is the guarantor of the credits.

As regional support the Government of Karelia will subsidize Petrozavodsk Public Systems for reimbursement of credit interest (up to 170 million).

30 million RUR (50% of the cost) will be also allocated from the city budget for development of design-estimate documentation for STF modernization.

Owing to participation of RKS OJSC in the project of the private company it became possible to give Petrozavodsk a gratuitous grant of international organizations in the amount of 280 million RUR (7 million EUR) for implementation of the project.

The project is designed until the end of 2015. The frames of the project include measures of increasing reliability of operation of WWTP, improved quality of discharged waste water, reduction of the negative environmental impact on the water area of Onega Lake. At the same time the project will allow continuation of the previously started works for improvement of the quality of the drinking water supplied to the centralized water supply system of Petrozavodsk.

In November 2012 an agreement for cooperation in the sphere of modernization of water supply and water disposal systems on the territory of the Republic of Karelia was signed between Vodocanal of Saint Petersburg SUE, the Government of the Republic of Karelia and the Corporation of Development of the Republic of Karelia.

The agreement was aimed at development and implementation of projects of creation and operation of an integrated water supply and water disposal system on the territory of the municipal entities of Karelia.

3.3. Agriculture

3.3.1. Leningrad region

In Leningrad region in the period of 2008-2012 new manure yards were put into operation and old ones were modernized with the total capacity of over 500,000 m^3 as well as special sites for poultry dung processing of the total capacity of 150,000 t/year.

Five enterprises introduced a modern system of manure separation into liquid and solid factions. Agricultural enterprises purchased over 30 units of high-production machinery for organic fertilizers transportation and application.

For farm animal waste storage the enterprises have built:

— 14 manure yards at cattle farms of the total capacity of 295,000 m3, including:

- Gomontovo PZ CJSC – 2 873 heads; manure amount – 51 756 t/year; manure yard capacity – 15 000 m3;
- Trud OJSC - 1 989 heads; manure amount – 35 280 t/year; manure yard capacity – 15 000 m3;
- Ostrogovitsy OJSC - 2 379 heads; manure amount – 53 049 t/year; manure yard capacity – 25 000 m3;
- Udarnik OJSC - 2 319 heads; manure amount – 57 578 t/year; manure yeard capacity – 30 000 m3;
- Rabititsy PZ CJSC - 3 372 heads; manure amount – 57 362 t/year; manure yard capacity – 35 000 m3;
- Prinevskoye PZ CJSC - 2 134 heads; manure amount – 39 463 t/year; manure yard capacity – 10 000 m3;
- Agro-Balt PZ CJSC - 3 301 heads; manure amount – 66 850 t/year; manure yard capacity – 20 000 m3;
- Predportovy CJSC - 1 285 heads; manure amount – 27 732 t/year; manure yard capacity – 15 000 m3;
- Krasnoozernoye PKh CJSC - 2 393 heads; manure amount – 47 442 t/year; manure yard capacity – 20 000 m3;
- Rodina CJSC - 2 376 heads; manure amount – 48 305 t/year; manure yard capacity – 20 000 m3;
- Detskoselsky PZ SPK - 2 844 heads; manure amount – 61 157 t/year; manure yard capacity – 30 000 m3;
- Agrotekhnika CJSC - 1 777 heads; manure amount – 36 358 t/year; manure yard capacity – 15 000 m3;
- Lyuban CJSC - 2 722 heads; manure amount – 57 793 t/year; manure yard capacity – 25 000 m3;
- Ptrokholod. Agrarian Technologies LLC - 1 518 heads; manure amount – 33 641 t/year; manure yard capacity - 20 000 m3;

— 8 manure yards at pig farms of the total capacity of 209 000 m3, including:

- Rassvet Plus LLC – number of units – 5 556; manure amount – 20 786 t/year; manure yard capacity - 10 000 m3;
- Ruchji Yorkshir PZ CJSC - number of units – 10 591; manure amount – 32 764 t/year; manure yard capacity - 20 000 m3;
- Svinka LLC - number of units – 3 352; manure amount – 12 540 t/year; manure yard capacity - 5 000 m3;
- PLamya PZ OJSC - number of units – 7 822; manure amount – 24198 t/year; manure yard capacity - 15 000 m3;
- Peofida LLC - number of units – 3 011; manure amount – 11 264 t/year; manure yard capacity - 5 000 m3;
- Bor Livestock Breeding Complex LLC - number of units – 14 957; manure amount – 46 271 t/year; manure yard capacity - 24 000 m3;
- Ryurik – Agro LLC - number of units – 95 384; manure amount – 295 080 t/year; manure yard capacity - 100 000 m3;
- Pulkovsky Agroholding - number of units – 17 463; manure amount – 54 023 t/year; manure yard capacity - 30 000 m3;

— 4 dung pits at poultry farms of the total capacity of 140 000 m3, including:

- Nevskaya PF CJSC - number of birds – 579 120; dung amount - 26 807 t/year; dung pit capacity - 40 000 m3;
- Udarnik PF SPK - number of birds – 329 400, young broiler stock 248 000; dung amount - 23 238 t/year; dung pit capacity - 40 000 m3;
- Primorskaya PF OJSC - number of birds – 810 427; dung amount - 37 543 t/year; dung pit capacity - 40 000 m3;
- Roskar PF CJSC - number of birds – 3 486 700; dung amount - 133 929 t/year; dung pit capacity - 20 000 m3.

Over the period the Government of Leningrad region spent over 20 mln. EUR for purchase of equipment and implementation of ecological projects of introduction of the new technologies recommended within the framework of the projects implemented under the auspices of HELCOM.

In 2011 the Expert Council of the Committee for the Agroindustrial and Fisheries Complex of Leningrad region with participation of the specialists of the Northwest Research Institute of Agriculture Mechanization and Electrification of the Russian Academy of Agricultural Sciences has developed and approved the Concept of Disposal of the Waste of Agricultural Enterprises of Leningrad region for 2012-2015 and for the period until 2020.

3 pig breeding complexes of Leningrad region are involved in construction of liquid pig manure disposal facilities using biogas plants of the aggregate capacity of 789 tons/day.

3 animal breeding have introduced technologies of liquid cow manure processing: Lyuban CJSC, Rodina CJSC, Petrokholod. Agrarian Technologies LLC with separation into solid and liquid factions. The solid faction is recycled by means of fermentation into an organic fertilizer on sites with a hard concrete surface and insulation against leakage into the soil. The liquid faction is kept with ferments in accumulating lagoons and further used as ammonia water for field fertilizing.

There are plans of introducing the technologies of liquid cow manure recycling at 11 more animal breeding farms of Leningrad region.

In 2012 as assigned by the Government of Leningrad region the Northwest Research Institute of Agriculture Mechanization and Electrification of the Russian Academy of Agricultural Sciences performed the research on “Development of the system of estimation social-ecological-technological criteria for solution of problems of sustainable allocation of productive forces to reduce the negative environmental impact of the wastes of animal breeding enterprises of Leningrad region in accordance with the requirements of the Russian and international legislation”.

The frames of the work included:

- Development of methodological recommendations for use of the system of estimation social-ecological-technological criteria in assessing investment projects of development of animal breeding industry and planning of development of the agroindustrial complex of the region ensuring ecological safety of animal breeding enterprises of Leningrad region;
- Creation of a bank of data with information on the current ecological situation at all agricultural enterprises of Leningrad region.

Besides, it included elaboration of the algorithm and procedure of introduction of the document of “Standard of organization. Technological regulations of manure (dung) recycling and use as organic fertilizers”.

Introduction of the Technological Regulations allows creation of the system of production control over manure and dung recycling into an organic fertilizer at the enterprise. In accordance with the legislation of the Russian Federation the Technological Regulations have the status of a local regulatory legal document. Its elaboration took account of the HELCOM requirements for ensuring ecological safety.

The Technological Regulations describe the conditions and procedure of the technological process of manure (dung) recycling into an organic fertilizer that ensures obtaining of a ecologically safe product with quality indicators meeting the requirements of the approved standard (specifications) and establishes work safety and achievement of optimal technical-economic indicators of particular production.

The Technological Regulations of manure (dung) recycling and use were developed for every farm individually with account for the volume and parameters of the initial raw materials, availability and structure of the agricultural land, existing crop succession, availability and type of agricultural machinery.

Implementation of the Technological Regulations provides for appointment of the persons responsible their observation and organization of permanent control of ecological safety by the order of the farm director.

The farm director approves the Technological Regulations and is responsible for its implementation to the bodies of the state ecological supervision.

The strictly regulated scheme of the manure (dung) disposal process facilitates control over the technological process by the director as well as the persons responsible for implementation of the Technological Regulations.

Due to proper organization of the work the introduction of the Technological Regulations of the enterprise results in reduced losses of nitrogen and phosphorus down to 30% and more.

Within the framework of BALTAZAR international project (2011-2012) the Technological Regulations for manure management were developed for three animal breeding enterprises of Leningrad region.

This work became part of the program of introducing measures of manure management at animal breeding farms of Leningrad region initiated by ***NEFCO*** jointly with ***the Program of Northern Dimension ecological partnership.***

The Technological Regulations of manure recycling and use have been now introduced at 9 enterprises.

Cattle breeding farms

1. Pervomaiskoye Plemkhoz CJSC;
2. Agro-Balt Plemzavod CJSC;
3. Krasnoarmeisky PZ CJSC;
4. Smena Agricultural Enterprise LLC;
5. Rodina CJSC;
6. Bor Livestock Breeding Complex LLC

Poultry farms

1. Oredezh Agrocomplex CJSC
2. Roskar Poultry Farm CJSC

Pig breeding farms

1. Pulkovsky Agroholding.

The researches have shown that stagewise introduction of the best available technologies of farm animal waste management and introduction of the system of production ecological control (Technical Regulations of manure/dung management) will allow 50% reduction of nitrogen and phosphorus input into the environment by 2020.

Creation of the Group of project implementation group (GPI) for work with poultry farms of Leningrad region

The Nordic Environmental Finance Corporation (NEFCO) under the auspices of

the Government of Leningrad region, the Ministry of Natural Resources and Ecology of Russia, the Ministry of Environmental Protection, Agriculture and Forestry Industry of Finland jointly with poultry farms has developed a joint investment project for transition to ecologically sustainable methods of dung recycling providing for design, construction and operation of modern dung recycling facilities.

The GPI is to help local poultry farms to resolve the problem of the dung resulting from intensive poultry breeding. NEFCO has selected 17 poultry farms producing in the aggregate 800 ths. tons of dung per year containing 3 ths. tons of phosphorus. In many places this dung is stored in tanks, and there is danger that unless proper measures are taken, up to 1,500 tons of phosphorus will get into the adjacent water courses and ground waters with a negative impact on the condition of the Baltic Sea. The aggregate potential pollution from 17 poultry farms is equivalent to the ecological load of human activities of 2 mln. people.

The GPI will provide assistance to poultry farms and environmental bodies with efficient planning and supervision over the systems of poultry dung processing. The task of the GPI is also engagement of outbound investors.

The NDEP grant is aimed at cofinancing of the Group of project implementation (GPI) for assistance in preparation, development and implementation of projects of agricultural waste recycling, the GPI will also render assistance to poultry farms and environmental bodies. After the first several experimental projects have been implemented, other poultry farms will follow their example. The GPI will also engages outbound investors in participation in the projects.

The total volume of project investments will amount to 23.2 million EUR, including the NIB loans (5.3 million EUR), the NDEP grant (4 million EUR) as well as the grans of NEFCO, DEPA, SIDA (Sweden), the Ministry of Environmental Protection of Finland of 9.3 million EUR and national capital.

Implemented international projects

12 international projects of ensuring ecological safety of animal breeding of Leningrad region were implemented in Leningrad region in the period of 2008-2012.

1. "Reduction of the environmental load from livestock farming in the Northwest of Russia" (2008 -2009.).

Financing body: European Union, INTERREG program

Project contractor**:** University of Applied Sciences, Mikkeli

Result obtained**:** performed analysis of the current ecological safety in pilot farms of Leningrad region - Plamya, Novy Svet, Primorskaya p/f. .

2. *"Measures to deal with the danger to the Baltic Sea on the part of the growing agricultural production of Leningrad region" (2008)*

Financing body: Ministry of the Environment of Finland

Project contractor: Компания Ramboll

Result obtained: Performed researches of the pollutant load from agricultural enterprises, prepared summary by the results of the previously implemented projects in agricultural ecology.

3. PRIMER project "Identification of priority measures to reduce input of biogenic substances into the Gulf of Finland from the territory of the Northwest Russia" (2008)

Financing body: Ministry of the Environment of Finland

Project contractor: Institute of the Environment (Helsinki)

Result obtained: studied sources of biogenic load on the Gulf of Finland (point and diffuse).

4. "Agriculture, environment and ecosystem of Leningrad region" (2003 - 2009)

Financing body: Swedish International Development and Cooperation Agency, SIDA

Project contractor: University of Agricultural Sciences (Uppsala)

Result obtained: proposed technological solutions for agricultural waste removal and recycling in Rapti CJSC and Krasnoozernoe CJSC.

Workshops on safe use of pesticides, health of ecosystems and water bodies monitoring were held in Sweden.

5. Dung incineration at Roskar poultry farm (2007 – 2009).

Financing body: NEFCO Finance Corporation, Northern Dimension Ecological Partnership, Roskar poultry farm

Исполнители проекта: Roskar poultry farm, Biolan Company

Result obtained: prepared investment plans for introduction of dung incineration plants by Biolan Company at 4 poultry farms of Leningrad region.

No joint venture was created. In early 2009 Biolan Company declared that its plant had failed the tests.

6. Improved protection of the Baltic Sea against major threats on the part of surface sources of pollution: BALTHAZAR" (2009-2012).

Financing body: **EU grant**

Исполнители проекта: Institute of the Environment of Finaldn, Finnish MTT Company, Pro-Agria of southern Karelia.

Results obtained: performed sampling and analysis of water samples from the water sources near agricultural enterprises. Renewed list of agricultural "hot" points.

In 2010 – 2011 "Modernization of the system of poultry dung recycling into organic fertilizers" was performed. Model design and estimate documentation was developed for construction of modular fermenter chambers of dung disposal. This technology was introduced by BIOZEM LLC at Oredezh Agrocomplex CJSC. Technological regulations for pilot farms of the region were developed.

7. "Preparation of business plans to improve farm poultry waste management at

poultry farms of Leningrad region" - 2010

Financing body: NEFCO Finance Corporation

Project contractor: PYURI Company

Results obtained: study of 50% of poultry farms showed that biogas production and dung incineration were very expensive. The optimal approach was dung recycling into a fertilizer, compost production. Creation of a joint venture was discussed.

There are plans of construction of dung disposal plants by fermentation recycling into an organic fertilizer – multipurpose compost – at 2 poultry farms of Leningrad region. The technology was developed by the All-Russia Research Institute of Agricultural Utilization of Reclaimed Land (Tver) and was awarded the State Prize. Experimental trial of the technological process was carried out at the pilot plant and the project on the industrial technology and introduction was prepared for recycling of 100 ths. tons of dung into a valuable organic fertilizer, which will allow to refuse from mineral fertilizers in some cases.

8. "Sustainable manure/dung management at farms of Leningrad region" (2011-2012)

Financing body: NEFCO Finance Corporation, Northern Dimension Ecological Partnership, Ministry of the Environment of Finland, Ministry of Agriculture of Finland.

Project contractor: Maxwell Stamp (Great Britain)

Results obtained: developed Feasibility Study for pilot farms: Pervomaiskoye, Bor, Primorskaya p/f, Udarnik p/f .

2 workshops were held on ensuring ecological safety in introduction of various methods of farm animal and poultry waste disposal. Business plans on production waste management for farms were prepared.

9. *"Development of environmental protection in agriculture of Leningrad region".* Subproject: "Ecological solutions on sustainable farm animal waste management at Novoladozhsky PZ OJSC".

Financing body: Ministry of Agriculture and Forestry, Ministry of the Environment of Finland

Project contractor: Joint Russian-Finnish consulting company, Pro-Agria of southern Karelia

Results obtained: in 2009 studies were carried out at Novoladozhsky PZ OJSC on cattle manure disposal. Recommendations were development for introduction of a biogas plant and the project of manure collection and storage in lagoons was prepared.

3.3.2. Kaliningrad region

In 2012 the following results were obtained within the framework of BALTAZAR project in the process of implementation of the program of "Ecological and economic assessment of the possibility of recycling and disposal of manure of cattle breeding farms in Kaliningrad region:

- preparation of the review of the technologies of manure and dung recycling and use of recycling products in different countries;
- estimation assessment of the necessary investments and operation costs for organization of manure and dung recycling on the territory of Kaliningrad region with account for the volumes of waste generation of the existing agricultural enterprises;
- assessment of the possibility of using products of manure and dung recycling on the territory of Kaliningrad region, other regions of Russia and countries of the European Union on the basis of the present and potential needs;
- assessment of the possible ecological consequences of creating manure and dung recycling facilities on the territory of Kaliningrad region and use of recycling products;
- comparative assessment of ecological efficiency of application of various technologies of manure and dung recycling on the territory of Kaliningrad region.

Technological regulations on manure and dung recycling into an organic fertilizer for its further field application were developed for three pilot farms.

Recommendations for improvement of the manure management system in Slavsk district were developed based on the latest Russian and European standards and equipment was purchased for subsurface application of manure at the pilot enterprise of the region.

By the results of statistical reports of the Ministry of Agriculture of Kaliningrad region (hereinafter the MA of KR), in 2012 the agricultural enterprises on the territory of the region had ≅ 60 ths. heads of cattle, ≅ 63 ths. pigs and ≅1.5 mln birds (egg and meat chicken). This cattle and poultry stock generates about 1.26 mln. tons of manure and dung per year (Fig. 1), and with account of development and planned increase of the stock the annual output will be about 2.7 mln. tons per year.

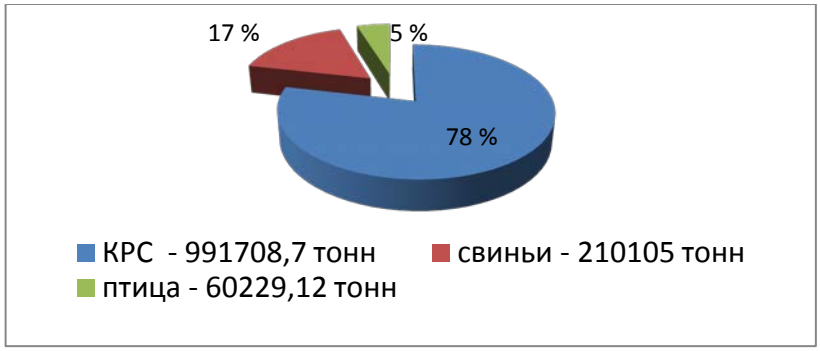


Fig.1 Annually generated manure and dung in Kaliningrad region

The amount of nitrogen annually generated with manure and dung is about 6,800 tons in 2012 with the prospect of 12,500 tons by 2015, and 2,900 tons of phosphorus in 2012 with the prospect of 6,900 tons by 2015.

The recent years have witnessed positive dynamics of increased use of agricultural land for plant growing. At present about 360 ths. hectares are actively used for agricultural production, with the prospective active use of over 700 ths. hectares of land. If the plans of plant growing development and stock increase in Kaliningrad region are fulfilled, processing of over 700 ths. hectares of land will provide the average nitrogen load of about 20 kg/hectare.

The information on the agricultural land used for production of major kinds of plant growing products in 2012 in given in Fig. 2.

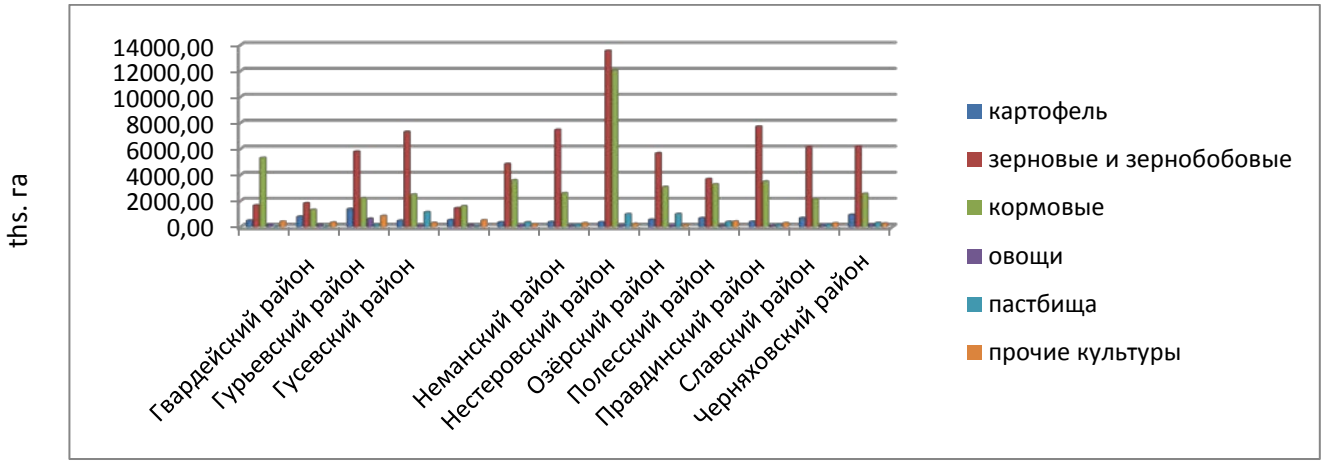


Fig. 2. Information on agricultural land (hectares) used for growing potatoes, grain crops, grain legumes, feed crops, vegetables: pastures, other cultures by districts of Kaliningrad region.

Every district has a substantial potential for application of organic fertilizers (Fig. 3).

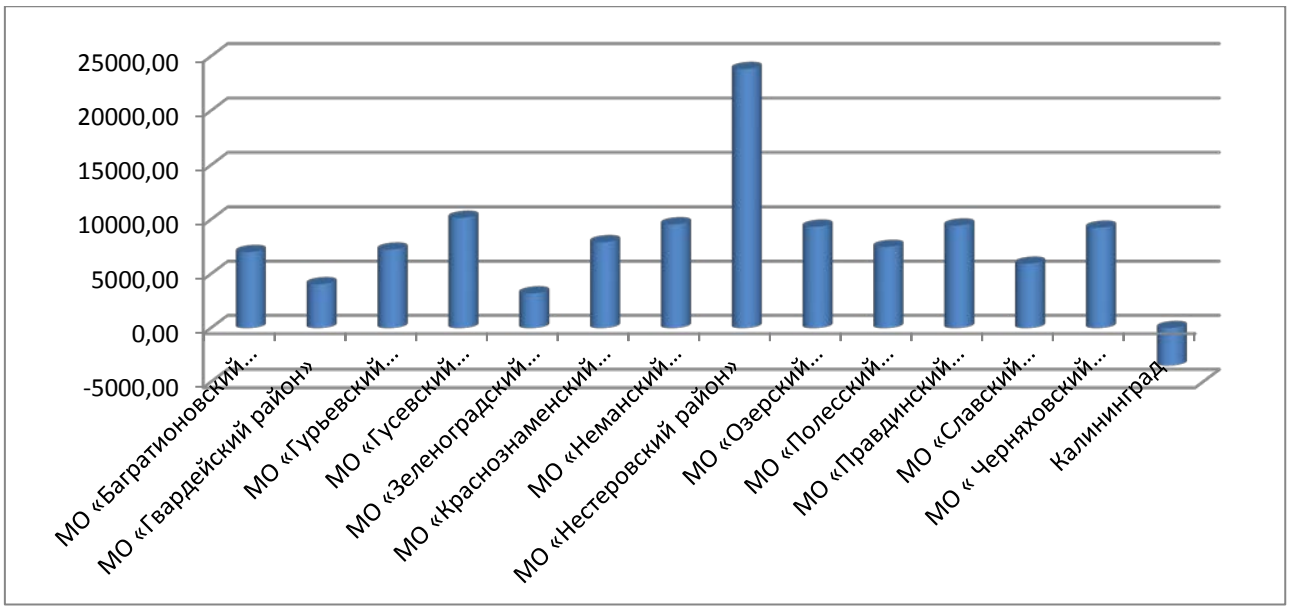


Fig. 3. Potential of agricultural land of KR for application of organic fertilizers.

Kaliningrad region has a reserve of agricultural lands for application of organic fertilizers according to the maximum nitrogen dose (170 kg/hectare) recommended by HELCOM, which does yet prevent development of animal and poultry farming in the region.

Given considerable increase of the cattle and poultry stock (according to the program of agricultural development of KR the cattle stock will increase twice, the pig stock 2.5 times and poultry stock 4 times), the entire volume of manure and dung will be needed for use as organic fertilizers.

Within the framework of BASE International Project aimed at providing assistance to Russia in implementation of the Baltic Sea Action Plan there are plans of development of:

- simplified database of agricultural enterprises in Kaliningrad region;
- draft long-term target program “Disposal of agricultural wastes produced at enterprises of the agroindustrial complex of Kaliningrad region as organic fertilizers” or another regulatory document that allows economic incentives for agricultural enterprises for solution of problems of manure/dung recycling and use;
- methodological recommendations for use of the system of estimation ecological-technological criteria in assessment of investment projects of development of the animal breeding industry and in planning development of the AIC of Kaliningrad region.

Practical implementation of the developed documentation will allow to avoid serious ecological problems at the stage of planning, designing and construction of new animal and poultry breeding complexes as well as to improve considerably the work in the already existing farms in issues of manure/dung recycling and use.

3.3.3. Pskov region

To reduce the biogenic input from agriculture 5 manure yards at 5 large cattle breeding farms were built in 2010-2011. The total funding of the works was 116 mln. RUR.

3.4. Adopted measures to reduce phosphorus content in detergents

Within the framework of the Single Customs Union the Russian Federation has developed the draft Technical Regulations “On Safety of Synthetic Detergents and Household Products” providing for step-by-step reduction of polyphosphates content in detergents to complete ban by 2020 that has not yet been supported by Belarus and Kazakhstan.

Work of coordination of the draft Technical Regulations with Belarus and Kazakhstan continues at the level of the governments of three countries.

The largest producers of synthetic detergents working in Saint Petersburg and Leningrad region have already stopped using polyphosphates in certain kinds of household products.

Since 2009 HENKEL RUS LLC has stopped using phosphates in 4 major synthetic detergents: Persil, Losk, Deni, and Pemos.

Reckitt Benckiser LLC does not use tripolyphosphate in production of Dosia and Lanza synthetic detergents.

Supporting the HELCOM initiative Aist CJSC works at modifying the formulas of synthetic detergents and household products with the phosphorus mass content down to 0.2-0.5% with its further exclusion. The concept of creating formulas of new kinds of products is determined with account of complete absence of phosphorus-containing components.

Washing powders based on zeolites sold in Saint Petersburg are produced by **Procter&Gamble and Ecover.**

Chapter 4. Hazardous substances

4.1. Ratification of Stockholm Convention on POPs

On August 17, 2011 the Russian Federation **ratified Stockholm Convention on persistent organic pollutants** (Federal Law No. 164-FZ dated 27.06.2011). After the Russian Federation signed Stockholm Convention on persistent organic pollutants, by the Order of the Ministry of Natural Resources of the Russian Federation No. 583 dated September 18, 2002 the functions of the National Coordinating Center of the Russian Federation on Stockholm Convention were assigned to the Center of International Projects Autonomous Non-Profit Organization (CIP ANPO).

The activities of the Coordinating Center are regulated by the effective legislation of the Russian Federation, Edicts of the President of the Russian Federation, Edicts and Resolutions of the Government of the Russian Federation, legislative instruments of the Ministry of Natural Resources and Ecology of the Russian Federation, guiding materials and provisions of the Convention.

The main task of the Coordinating Center is coordination of the activities of Russian institutions involved in implementation of the Convention, including development of the National Action Plan.

The functions of the Coordinating Center include interaction with the Secretariat of the Convention and the UNEP department for chemical substances, intergovernmental organizations, Coordinating Centers of other countries, executive authorities of the Russian Federation, nongovernmental organizations and the public, representatives of various sectors of economy on issues of implementation of the Convention.

The CIP ANPO has developed the draft National Plan of implementation of Stockholm Convention. The priority measures of the National Plan include:

- inventory of the stocks of unsuitable pesticides;
- inspection of the places of storage of unsuitable pesticides, including burials, including unauthorized places;
- large-scale inventory of the stocks, equipment, wastes, places of PCB storage;
- marking of the equipment containing PCB;
- large-scale inventory of the territories polluted with POPs and creation of a databank.

4.2. Saint Petersburg

System of collection and disposal of hazardous wastes from the population

Since 2010 Saint Petersburg has had the system of regular collection of hazardous wastes from the population by means of mobile collection points – Ecomobil – that is a motor car provided with special containers for hazardous waste collection and transportation. The Ecomobil accepts batteries and mercury-containing wastes as well as spent car-batteries, used tires, office equipment, household chemicals, expired drugs.

In April 2013 Saint Petersburg installed stationary terminals for collection of hazardous wastes: Ecoboxes. One can take spent batteries, mercury-containing lamps (luminescent, compact energy-saving lamps), mercury thermometers to the Ecobox. The Ecobox is metal box provided with a special system of acceptance of energy-saving lamps and thermometers. When mercury-containing devices are dropped into the receiving hole the integrity of their cases is not broken. The address and schedule of Ecomobil parking and addresses of the Ecobox are placed at www.infoeco.ru.

The collected mercury-containing domestic wastes are recycled at Ecostroy production line in a special shop performing demercuration. Then the mercury-containing bulb are broken, mercury is gathered, packaged into a leakproof metal container and taken for burial to a special landfill of toxic wastes (Krasny Bor SUE) as the waste of the first class of hazard. The glass of the broken bulb is gathered into a special container and also taken to Krasny Bor landfill.

The pure metal mercury from thermometers, blood pressure sensors and other mercury devices is taken tp specialized enterprises for reuse in new devices.

The collected batteries are recycled by specialized organizations involved in their production or are buried at Krasny Bor landfill in leakproof containers. Tires, household chemicals, paints and varnishes, drugs are also sent to Krasny Bor landfill.

Acceptance and recycling of industrial hazardous wastes

Saint Petersburg State Unitary Enterprise Landfill "Krasny Bor" situated on the territory of Leningrad region is the only enterprise in the Northwest Federal District involved in acceptance, disinfection and burial of toxic production wastes (HELCOM hot point No. 22).

The landfill accepts the following kinds of wastes:

- liquid inorganic wastes (wastes of galvanic production, etc.);
- liquid organic wastes (emulsions, distillation residues, tars, solvents, oil products, etc.); жидкие отходы неорганического состава (отходы гальванических
- solid and paste organic and inorganic wastes (sludges of galvanic production, soil polluted with oil products, etc.);
- especially hazardous wastes of the 1st class of hazard (mercury-containing wastes, cyanides, arsenic, cadmium and other strong poisonous substances).

More than 350 industrial enterprises of Saint Petersburg and Leningrad region have contractual relations with the enterprise for disposal of industrial toxic wastes. Although the landfill capacities are limited, the specialists of the enterprise have developed the program of effective use of the available potential of Krasny Bor landfill. Further development of the landfill involves introduction of new technologies of toxic waste recycling.

The landfill currently recycles some part of the wastes containing oil products with the water content of less than 15%. Installation of equipment for rubber waste and used car-tires recycling is being completed.

Nonrecyclable wastes are taken for deposition in open cell pits of the landfill until commissioning of the experimental enterprise of recycling and burial of industrial toxic wastes of Saint Petersburg and Leningrad region. Industrial toxic wastes are stored at the landfill in special hydrotechnical structures – cell pits – in accordance with the Safety Declaration.

In 2011 the Committee for Natural Resource Management, Environmental Protection and Ecological Safety of Saint Petersburg issued an instruction on creation of the Regional Scientific-Technical Ecological Center (RSTEC) on the base of Krasny Bor Landfill SUIE to increase the efficiency of introduction of innovative technologies in the field of production waste collection, storage, recycling and disposal.

The first stage of construction of the enterprise for hazardous waste recycling has been completed, including treatment facilities, pumping stations, control-regulating ponds, power and heating supply facilities, motor transport washing building and storage of specially hazardous wastes.

Work is being completed on construction of the building of organic oil-containing waste recycling and storage of organic wastes. The estimated commissioning time is 2013.

In 2013-2014 construction of the buildings for recycling of organic waste and waste from open cell pits will be completed. Simultaneously the territory of the landfill is recultivated. Construction is supposed to be completed in December 2014, which allow closing of HELCOM hot point No. 23.

Oil spill response in the Neva water area

Due to commissioning of new Russian oil loading terminals at the Baltic Sea there is a growing number of ships using the Volga-Baltic water system, which resulted in the growing number of emergency oil spills in the Neva.

Saint Petersburg has created a modern oil-gathering fleet (3 oil recovery vessels) and in 2011 an ice-breaker for oil spills elimination in the winter time was put into operation.

In the navigation period of 2010 the emergency services of the city eliminated 142 oil products spills and gathered 94.3 tons of oil-water mixture that did not reach the Baltic Sea.

109 spills of oil products were eliminated in 2011, with 13.2 tons of oil-water mixture gathered.

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98 small ol spills were eliminated in 2012, with 10.8 tons of clean oil gathered.

The number of the cases of illegal discharge of bilge waters in the Neva has recently dropped sharply after lidars (sensors) recording oil patches and sending the SMS-messages to the phone of the duty emergency service were installed on the bridges.

The identified culprits of oil products spills, either voluntarily or judicially, compensate for all the costs of spill responses or reimburse for the damage inflicted on the environment.

4.3. Leningrad region

Within the framework of BALTAZAR project in 2011 the plan of reclamation of the domestic waste dump in Ust-Tosno was created.

Safe Technologies CJSC has developed a model complex of thermal disinfection of medical and biological wastes (KTO-50.K20).

In 2012 a complex of thermal disinfection of wastes in Priozersk district of Leningrad region was put into operation by the company.

The stagewise process of high-temperature processing allows 95% reduction of the initial waste volume, complete disinfection of the contained microorganisms and multistage treatment of flue gases.

The ecological safety of the complex has been confirmed by the numerous tests resulting in positive references about the operation of the equipment, sanitary-epidemiological and ecological conclusions.

4.4. Kaliningrad region

Within the framework of **BALTAZAR project** assistance was rendered in development of ***the system of mercury lamps collection*** from the population in small municipal entities of Kaliningrad region.

Fuel-cargo complex of the sea fishing port (hot spot No. 71)

The fuel-cargo complex (FCC) being part of the State Sea Fishing Port FSUE of Kaliningrad has the status of HELCOM hot point. The mass of oil products in the ground on its territory is over 1,000 tons. The runoffs from the territory of the FCC into the Pregolya river exceed the maximum permissible discharge norms up to hundreds of times for some indicators.

In 2010 work started for recycling of oil sludge residue contained in the in the ground storage on the territory of the fuel-cargo complex. 147.07 m3 of oil sludge were

exported for recycling in 2010. As of March 2013 the oil sludge volume in the sludge reservoir at the fuel-cargo complex is 650 tons.

Oil sludge recycling produces PUN mineral powder used in road building as an additive or component for asphalt-concrete mixtures or as constructive elements of motor roads.

In 2011 work started at gathering and transportation of emulsion wastes and oil products mixtures from the territory of the sea fishing port for temporary storage, disinfection and disposal of hazardous industrial (toxic) wastes to ECO-Partner LLC licensed for such activities.

In March 2013 KSFP FSUE started implementation of the international project aimed at studying the possibility of cleaning of the territory of the fuel-cargo complex from oil products pollution.

4.5. Pskov region

The regional long-term target program of "Integrated measures for safe management of outdated pesticides on the territory of Pskov region for 2011-2013" was adopted. By the end of 2013 the program provides for complete localization of 600 tons of outdated pesticides.

The measures for disinfection and destruction of gathered pesticides have been included into the Federal target program **National system of chemical and biological safety of the Russian Federation".**

4.6. Novgorod region

30 thousand mercury lamps and 1,642 medical thermometers were gathered and taken to Saint Petersburg to EP Mercury LLC processing enterprise for disposal within the framework of the municipal target program "Ecology of Novgorod (2011-2012)".

4.7 Screening of availability of hazardous substances in water bodies

Within the framework of **BALTAZAR project** methods of identification of hazardous substances stated in HELCOM Baltic Sea Action Plan were tested, and screening was performed of availability of harmful substances in the waste water at the treatment facilities of Saint Petersburg and in the Neva water.

Screening of drug compounds

Specialists of Saint Petersburg Scientific Research Center of Ecological Safety (SRCES) of the RAS have developed methods of simultaneous identification of 12 drug compounds in water, which is quite significant and promising from the practical point of view.

The methods of analysis are based on liquid chromatography – high resolution mass spectrometry that is a highly sensitive and highly specific method of analysis when

precise values of molecular masses of the substances being analyzed are measured with separation of the useful signal from chemical noise. This allows detection of small quantities (less than nanogram) of the substance in the introduced sample and ensures its confident identification.

The following drugs were identified: caffeine (stimulant), tetracycline, clarithromycin, amoxicillin and ampicillin (antibiotics); trimethroprim, norfloxacin and ciprofloxacin (antimicrobial agents), ketoprofen and diclofenac (nonsteroidal anti-inflammatory agents); ranitidine (blocking agent of H2-histamine receptors); bezafibrate (hypolipidemic agent).

The measurements were performed using a liquid chromatographer – tandem high-resolution mass-spectrometer LTQ OrbiTrap of Thermo Finnigan Company (USA). The method was tested with individual solutions of standards specimens in acetonitrile with various concentrations for optimization of mass-spectrometric parameters. Mixtures of standards were applied at the stage of selection of conditions of chromatographic column separation.

The developed method was tested on water samples from various water bodies, including recreational zones of Saint Petersburg, Leningrad region and the Republic of Karelia in the summer of 2009-2011. Every year the list of sampling stations was somewhat changed and expanded. The presence of caffeine was identified practically in all water samples from the studied water bodies of the Northwest region of the RF; some samples revealed ketoprofen, diclofenac and ciprofloxacin in concentrations from dozens to hundreds ng/L.

4.8. Radioactive pollution

Russia's commitments under the program of pollution monitoring of water bodies in the Baltic Sea area are performed by V.G. Khlopin Radium Institute under the guidance of Rosatom.

V.G. Khlopin Radium Institute FSUE performs annual monitoring of radioactive pollution of various media (water, benthos deposits, biota) in Ladoga Lake, the Neva Bay, eastern Gulf of Finland with the Koporskya Bay, western Gulf of Finland, open part of the Baltic Sea.

Russia actively participates in the work of the Working Group of experts in nuclear and radiation safety (EGNRS) established by the Committee of Higher Executives of the Council of Baltic states.

The issues of ensuring radiation safety are included in **the Long-term target program "Environmental protection and natural resource management in Leningrad region for 2011-2015"** (approved by the Government of Leningrad region on 07.07.2011 No. 206).

The measures of the program are aimed at support and further development of radiation-hygienic certification of municipal entities using radioactive sources of ionizing radiation or radioactive wastes (90 facilities annually).

4.9. Elimination of the environmental damage resulting from previous activities

In accordance with c.3 of the Minutes of the meeting at Chairman of the Government of the Russian Federation D.A. Medvedev No. ДМ-П9-2 dated January 9, 2013the Ministry of Natural Resources of Russia started development of the draft federal target program of clean-up of the environmental damage resulting from previous business activities.

The draft plan includes:

- reclamation of solid municipal wastes landfills in Leningrad region;
- cleaning and reclamation of the territory of the oil-sludge storage in Nevel town of Pskov region. .

Chapter 5. Nature and Biodiversity Conservation

5.1. Integrated Coastal Zone Management

The development strategy of the Russian Federation's maritime activities provides for the transition to integrated development planning and management of marine activities; to integrated development and management of coastal zones; the program as well provides for coordinating programs for the integrated development of coastal territories and coastal waters with the catchment areas management programs; the strategy is also dealing with maritime spatial planning.

The Government of the Russian Federation has launched implementation of a strategic objective of the transition to integrated development planning of coastal territories and coastal waters, which are considered to become consolidated entity of state management. An important task was set before the Coastal Constituent Regions of the Russian Federation – namely, to develop and implement programs for the integrated development of coastal territories and coastal waters as an independent component of comprehensive strategies and to develop and implement programs for social and economic development of the Coastal Constituent Regions of the Russian Federation, and to design programs for development of the Coastal Municipal Entities, including those located in the Baltic Sea basin.

The Constituent Elements of the Integrated Development Programs for Coastal Territories and Coastal Waters

— plans for introduction of special economic zones, maritime clusters and other advanced modes of maritime activities spatial organization;

— schemes and plans for development of transport and port infrastructure designed to create territorial industrial complexes (clusters) of relevant specialization profile, which, at least, would be engaged in primary processing of transient cargo traffic;

— programs for integration of environmentally friendly high-speed multi-purpose amphibian type hovercraft or ground effect vessels, that allow year-round navigation - that shall provide state-of-the art competitive maritime transport services and ensure environmental security of the contemporary regional transportation schemes;

— schemes for establishing and development of a network of fishing enterprises, fish farms, processing and marketing companies in the Coastal Constituent Regions of the Russian Federation;

— a set of guidelines designed to enhance the use of marine genetic resources, to develop technologies for derivation of valuable products from the basic fish processing industry waste (including bio-active substances, enzymatic protein hydrolysates, preventive and therapeutic medications, etc.);

— measures designed to develop the elements of maritime management service economy in the Coastal Constituent Regions of the Russian Federation, to enhance the activities of feeding and service companies, subcontractors and ‘train wares’ enterprises: hydrometeorology, navigation and hydrographic support for navigation, information systems and networks, etc.

— technical and financial feasibility studies and business plans for enchantment of coastal infrastructure;

— a list of investment proposals and projects for introduction of new technologies and high-tech materials into the regional maritime cluster that should enhance its efficiency and competitiveness.

5.2. Marine Spatial Planning

Research and Design Institute of Urban Development under the instruction of the Russian Ministry of Economic Development completed a research project: "Development of the offshore marine (spatial) planning toolkit and proposals for its application in the Baltic Sea area"

The work was performed in cooperation with the HELCOM-VASAB working group as part of the international scientific and technical cooperation on marine spatial planning and in cooperation with designated organizations in Germany.

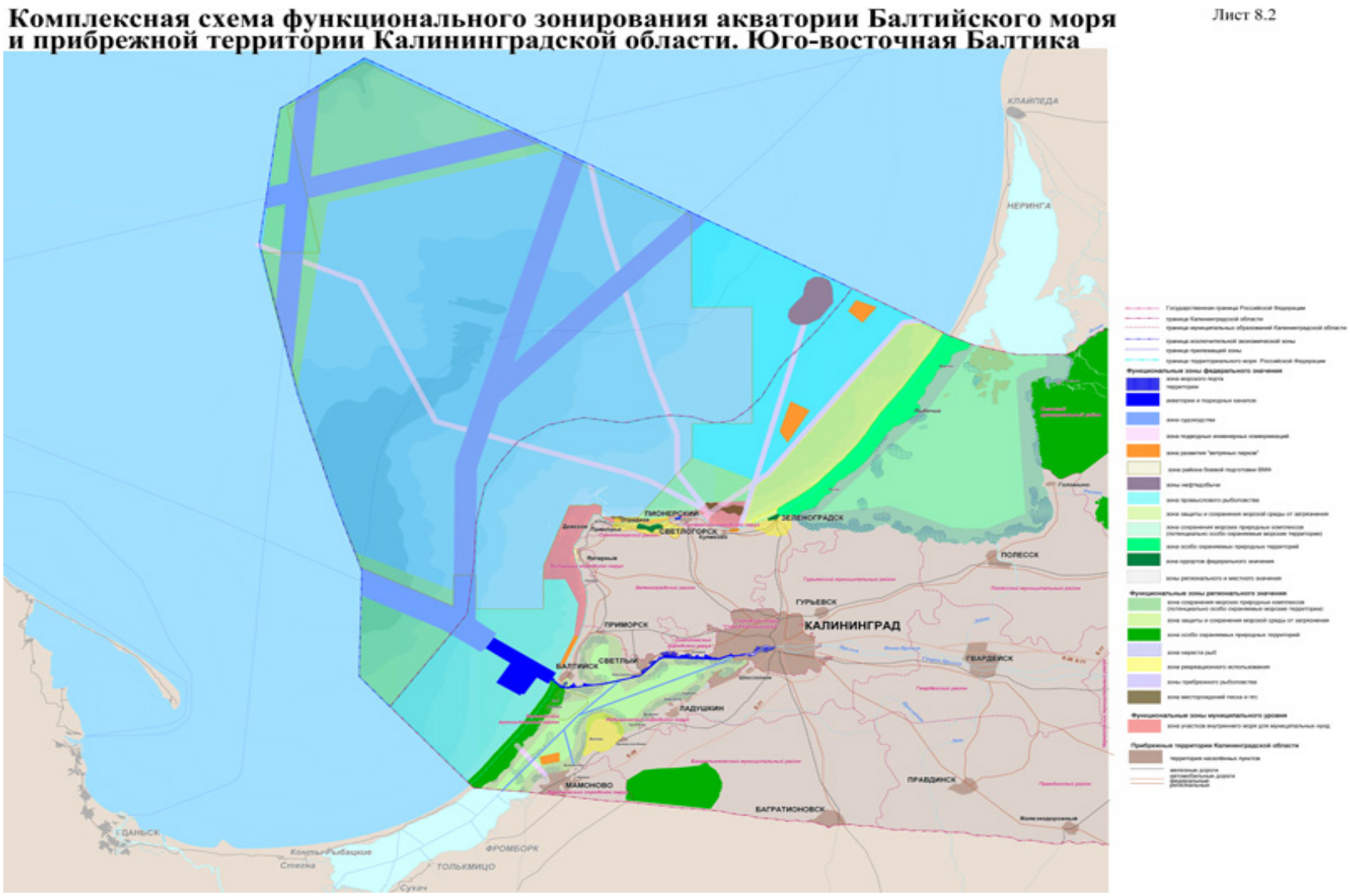
Objective: To develop proposals for enhancement of the existing regulatory framework for the offshore marine (spatial) planning and model testing of the proposals by the example of the Baltic Sea. The analysis of the establishment and functioning of the state management of marine waters on the basis of institutional and spatial approaches

The key principles of the legal system of the offshore marine (spatial) planning have been defined as a result of the analysis of the offshore marine planning toolkit as a specialized system of laws, regulations and guidance documents that are part of the common toolkit of spatial planning

In accordance with the accepted methodology proposals for application of the marine offshore special planning toolkit for the functional zoning of marine areas were developed, by the example of the Baltic Sea territories:

- Neva Bay and the Gulf of Finland
- South-East Baltic including the Russian part of the Curonian and Kaliningrad Lagoons.

A series of functional zoning maps of the Russian part of the Baltic Sea water areas was developed.



Comprehensive scheme of the Baltic Sea water area and costal territory of the Kaliningrad Region functional zoning

with the support of

Since October 2012 the Research and Design Institute of Urban Development (with the assistance of the Ministry of Regional Development of the Russian Federation and the Federal Ministry for the Environment, and Nature Conservation and Nuclear Safety of the Federal Republic of Germany) together with the German Institute for Spatial Environmental Planning (Dresden) has begun developing a two-year project – namely, "Development of proposals on incorporation of environmental principles of spatial planning into the urban planning documentation of the Russian Federation with taking into account the German experience. "

5.3. Development of the specially protected natural areas

In December 2011, the Government of the Russian Federation approved the concept for the development of specially protected natural territories of federal significance for the period up to 2020 drafted by the Russian Ministry of Natural Resources, as well as the action plan. It provides for creation, over the first eight years, of 11 new nature reserves, 20 national parks and three federal wildlife sanctuaries; it is to ensure protective zones around the territories of nature reserves and national parks and to ensure fulfillment of the obligations of the Russian Federation under the relevant international conventions and agreements.

5.3.1. System of the protected areas in the Russian Federation

Nature conservation designation types in the Russian Federation

Adequate nature friendly management is mandatory condition for selecting a natural are as a potential Emerald site. Russian legislation allows flexible approach to the conservation of natural areas. It makes possible to protect nature not only within formally established Protected Areas, but also outside their boundaries. It fully correlates with the ecosystem approach of the Convention on Biological Diversity. PAs in Russia could be grouped in 3 categories of designation types as envisioned for the Emerald Network of Bern Convention (Russia is not an EU member state, that's why we are using Bern convention approaches, which are close to EU Habitat Directive).

Category A – Designation types used with the intention to protect flora, fauna, habitats and landscapes (the latter as far as relevant for fauna, flora and for habitat protection):

- Majority of Specially Protected Natural Areas established applying on the Act on Specially Protected Natural Areas and related Laws. SPNA's make the basis of the Emerald Network implementation in Russia;
- State Strict Nature Reserves;
- National Parks;
- Nature Parks;
- State Nature Reserves (or Preserves);
- Natural Monuments.

Category B – Statutes under sectorial, particularly forestry, legislative and administrative acts providing an adequate protection relevant for fauna, flora and habitat conservation:

- Strictly and Specially protected forest spots, Forest-parks and Green zones, Other protective forests, Reserved forests (Forest Code and related Law);
- Water protection zones (Water Code and related law);
- Animal protection territories and aquatories (Act on the Animal World and related law);
- Fish protection zones (Fishery Law);
- Areas of traditional land use (Act on the Areas of traditional land use);
- Historic and cultural strict reserves and monuments (Cultural Heritage Law);
- Health resorts and spas (Resort Law + SPNA Law);
- Reserved areas for future PA establishment (SPNA Law, Town-planning Law, special governmental decisions).

Category C – Private statute providing durable protection for fauna, flora and habitats:

- Biological stations;
- Certified forest spots;
- Game reproduction zones;
- Other conservation private initiatives.

More details about the mentioned SPNA categories

State Strict Nature Reserves – famous Russian Zapovedniks.

Main aim: conservation of natural processes, natural communities, and biodiversity, as well as studying them if appropriate.

Majority of Zapovedniks belong to PA categories Ia or Ib by IUCN.

Zapovedniks are established by governmental decisions on the federal level.

Each Zapovednik is managed by the specially established direction (federal institution) and supervised by the Ministry of Natural Resources and Environment of the Russian Federation.

Zapovedniks are in the federal property. Direction of a Zapovednik is the land user. Conservation regime prohibits any activity and presence of people, with the exception for carrying out conservation measures and/or studies according adopted plans.

There are 4 Zapovedniks with a total size around 127 400 hectares in the Baltic catchment area in Russia. A lot of Zapovedniks are included in the nominated World Heritage Sites, Biosphere Reserves, and Ramsar Sites.

National Parks.

Main aims: nature conservation, environmental education, specially organised tourism and recreation.

Majority on Russian National Parks belong to PA categories II, Ia or Ib by IUCN.

National Parks are established by governmental decisions on the federal level.

Each National Park is managed by the specially established direction (federal institution) and supervised by the Ministry of Natural Resources and Environment of the Russian Federation.

National Parks are in the federal property. Direction of a National Park is the main land user but some parts of the Park may be in a property of various juridical or physical persons.

Conservation regime is specific in different zones of each National Park. As usually, there are strictly protected zone (regime is similar to zapovednik's one), strongly protected zone for specially organised excursions, touristic zone, recreation zone, often - historic and cultural heritage zone, touristic service zone for visitor reception.

There are 4 National Parks with a total size 251 332 hectares in the Russian part of the Baltic catchment, some of them consist of several separate areas. Several National Parks are included in the nominated World Heritage Sites and Biosphere Reserves.

Nature Parks.

Main aims: nature conservation, environmental education, tourism and recreation.

Majority on Russian Nature Parks belong to PA categories II or V by IUCN.

Nature Parks are established by decisions of regional authorities by the recommendation of the federal conservation authorities.

Commonly Nature Parks is managed by the specially established direction (regional institution) and supervised by the regional conservation agency.

Nature Parks are in the regional property. Direction of a Nature Park is the main land user but some parts of the Park may be in a property of various juridical or physical persons. Conservation regime is specific in different zones similar to National Parks but not too detailed.

There are at least 3 Nature Parks with a total size near to 242 880 hectares in the Russian part of the Baltic. A few Nature Parks are included in the nominated World Heritage Sites and Biosphere Reserves.

State Nature Reserves (Zakazniks).

Main aims: conservation and/or restoration of natural complexes and their components, maintaining environmental balance.

Majority of State Nature Reserves belong to PA categories IV or VI by IUCN.

State Nature Reserves are established by decisions of federal or regional authorities.

Commonly a Federal State Nature Reserve is managed by the direction of the nearest Zapovednik or National Park and supervised by the Ministry of Natural Resources and Environment of the Russian Federation. Regional State Nature Reserves are managed often by the Regional Direction of SPNA's or directly by regional conservation agency.

State Nature Reserves are situated on lands of various stakeholders.

Conservation regime is established by an agreement with land proprietors, land users, and other stakeholders. Their activities are not banned but restricted only up to the agreed optimal impact not harmful for target objects.

There are 4 Federal State Nature Reserves with a total size near to 212 112 hectares as well as about 72 Regional State Nature Reserves with a total size about 695 700 hectares in the Russian part of the Baltic. Just the high number and large total size ensure the role of State Nature Reserves in maintaining environmental balance.

Nature Monuments.

Main aim: conservation of unique and other high value natural complexes and features. Majority of Nature Monuments belong to PA categories III, rarely - IV or VI by IUCN.

Nature Monuments are established by decisions of federal or regional authorities.

Federal Nature Monuments are managed by regional departments of the Federal Supervisory Natural Resources Management Service. Regional State Nature Monuments are managed often by the Regional Direction of SPNA's or directly by regional conservation agency.

Nature Monuments are situated on lands o various persons.

Conservation regime is established by an agreement with land proprietors, land users, and other stakeholders. Their activities are not banned but restricted only up to the agreed optimal impact not harmful for target objects.

There is 1 Federal Nature Monument with a size of 4 hectares as well as about 299 Regional Nature Monuments with a total size about 122 834 hectares in the Russian part of the Baltic. A lot on Nature Monuments are enough large for conserving an example of a habitat of European importance and/or maintaining viable populations of plants or invertebrate species.

5.3.2. Saint Petersburg

Currently, nature protection fund of St. Petersburg comprises 12 protected areas (PAs) of regional significance. The total area of the fund makes 5 712.7 hectares, which accounts for 3.97% of the St. Petersburg area.

All in all, the St. Petersburg territory comprises 5 Regional State Nature Reservers and 7 Nature Monuments, with three of the latter being established in 2011: "Pike Lake" and "Sestroretskoe mire" regional nature reserve, as well as "Peter Pond" nature monument.

Regional State Nature Reserves (Zakazniks):

- "Gladyshevsky" (Kurortny district) with an area of 765 hectares;

- "Yuntolovsky" (Primorsky district) with an area of 976.8 hectares;

- “North Coast of the Neva Bay" - (Kurortny district) with an area of 330 hectares;

- “Pike Lake" (Kurortny district) with an area of 1157 hectares;

- “Sestroretskoe Mire" (Kurortny district) with an area of 1877 hectares.

Nature Monuments:

- “Duderhof Heights" (Krasnoselskiy district) with an area of 65 hectares;

- “Komorowski coast" (Kurortny district) with an area of 180 hectares;

- "Sergievka" Park (Petrodvorets district) with an area of 120 hectares;

- “Strelninsky Beach” (Petrodvorets district) with an area of 40 hectares;

- West Kotlin (Kronstadt district) with an area of 102 hectares;

- Perovskiy pond (Primorsky district with an area of 3.1 hectares;

- Yelagin Island (Petrograd district) with an area of 96.8 hectares;

5 PAs are located on the coast of the Gulf of Finland. Each of these areas has its own profile; each possesses not only well-preserved valuable natural systems, but also a great history.

The "Duderhof Height" nature monument and the «Sergievka" Park are listed by UNESCO as World Heritage Sites as part of the Historic Centre of Saint Petersburg and its surrounding areas.

The Master Plan for St. Petersburg development provides for a set of legal, organizational and project activities intended to establish a system of PAs (21 areas). The estimated total area of this territory is to make 23622 hectares, with the park status being granted to the Kurortny, Komorowsky, Razliv forest-parks and with taking into account the East Atlantic flyway of birds and their staging areas.

The objectives of the PAs’ establishment in the city of St. Petersburg are as follows:

- Preservation of the coastal landscapes in the eastern part of the Gulf of Finland, which are natural coastal zone of high ecological significance and serve as a habitat for rare species of plants, as nesting sites for birds and spawning sites for fishes.
- Preservation and restoration of the Duderhof Heights unique landscape.
- Preservation of valuable landscapes, regarding their natural and cultural value, on the southern coast of the Gulf of Finland for research, training, educational and recreational purposes.
- Preservation and restoration of Sestroretsky wetlands and Sestroretsky Razsliv lake natural systems.
- Preservation of natural and cultural landscapes.

The "Establishment of the system of PAs in St. Petersburg" program has been developed (2011-2015)

Costs of establishing the system of PAs in St. Petersburg will account for18 million rubles allocated from the budget of St. Petersburg.

The newly established PAs are located primarily outside the historic part of the city. The Kurortny district will rank first regarding the number and size of PAs. It is planned that by 2025 the SPNA will account for one tenth of its area.

St. Petersburg Red Data Book of Nature

The St. Petersburg Red Data Book was established in 2011. In accordance with the current legislation in force extermination of the species listed in the Red Data Book, as well as of their habitats, is prohibited. The approved list includes 424 species – the status of these populations within the city territory is conceded to be unsatisfactory for various reasons. The "Red Data Book" species include 46 species of plants, 65 species of bryophytes, 54 species of lichens, 16 species of algae, 81 species of fungi and slime mold, 2 species of amphibians, 3 species of reptiles, 4 species of fish, 65 species of birds, 16 species of mammals and 92 species of invertebrates.

5.3.3. Leningrad Region

As of 01.01.2013, the Leningrad Region incorporates 46 PAs, including two PAs of federal significance, 40 PAs of regional significance (the "Vepssky Forest" nature park, 24 state nature reserves (zakazniks) and 15 nature monuments), and 4 PAs of local significance. The total area of PAs is 586.7 thousand hectares or 6.8% of the Leningrad Region territory. PAs of regional significance occupy 5.6% of the Leningrad Region territory.

The Leningrad Region protected areas of federal and regional significance comprises five wetlands of international importance, nominated to the Convention on Wetlands to be of International Importance, especially such as Waterfowl Habitat (Ramsar Convention). Four PAs of regional importance are located within their boundaries.

Four PAs of regional importance are nominated to the HELCOM’s network of the Baltic Sea Protected Areas – namely, "Berezovye Islands", "Kurgalsky" "Lebyzhy", "Vyborgsky". Total area is 132 884.7 ha, including the water area of the Gulf of Finland, which is 97 658.4 ha.

The "Lindulovskaya Grove" is part of the UNESCO World Heritage Site. The full name of the Site is the "Historic Centre of Saint Petersburg and Related Groups of Monuments."

Specially Protected Sites:

- sites of waterbirds and semi-aquatic birds aggregation (stopover sites, nesting and moulting grounds);
- areas of seals aggregation (zones of mass reproduction and moulting of the Baltic ringed seal, rookeries of the Baltic ringed seals and grey seals);

- spawning sites;
- benthic habitats with communities of macrophyte algae;
- coastal shallow waters and coastline with maritime and sublittoral vegetation, dunes;
- swamp areas, lakes;
- natural and old-growth forests;
- numerous species of plants, animals and fungi listed in the Red Data Books of various ratings

The priority tasks assigned to the network of PAs of the Leningrad Region include the following ones:

1. Preservation of natural ecosystems which are essential for the conservation of biological and landscape diversity including the following ones:

— natural habitats of the Onega – the Svir River - Lake Ladoga - the Neva river - Neva Bay of the Gulf of Finland – the Gulf of Finland water ecosystems ;

— reference natural landscapes that are reflective of the physical and geographical structure of the area (according to the landscapes delineated within its boundaries);

— ecosystems located on the terrain with a complex micro-and mesorelief;

— headwaters of the major rivers;

— natural bottomland plots and river estuaries;

— small rivers, especially with catchment areas preserved in their natural state;

— mesotrophic and raised bogs that are decisive for hydrological regime of the surrounding areas;

— reference natural forests primarily comprising representative samples of indigenous (spruce) old-growth forests, old-growth pine forests and old-growth forests with broad-leaved trees;

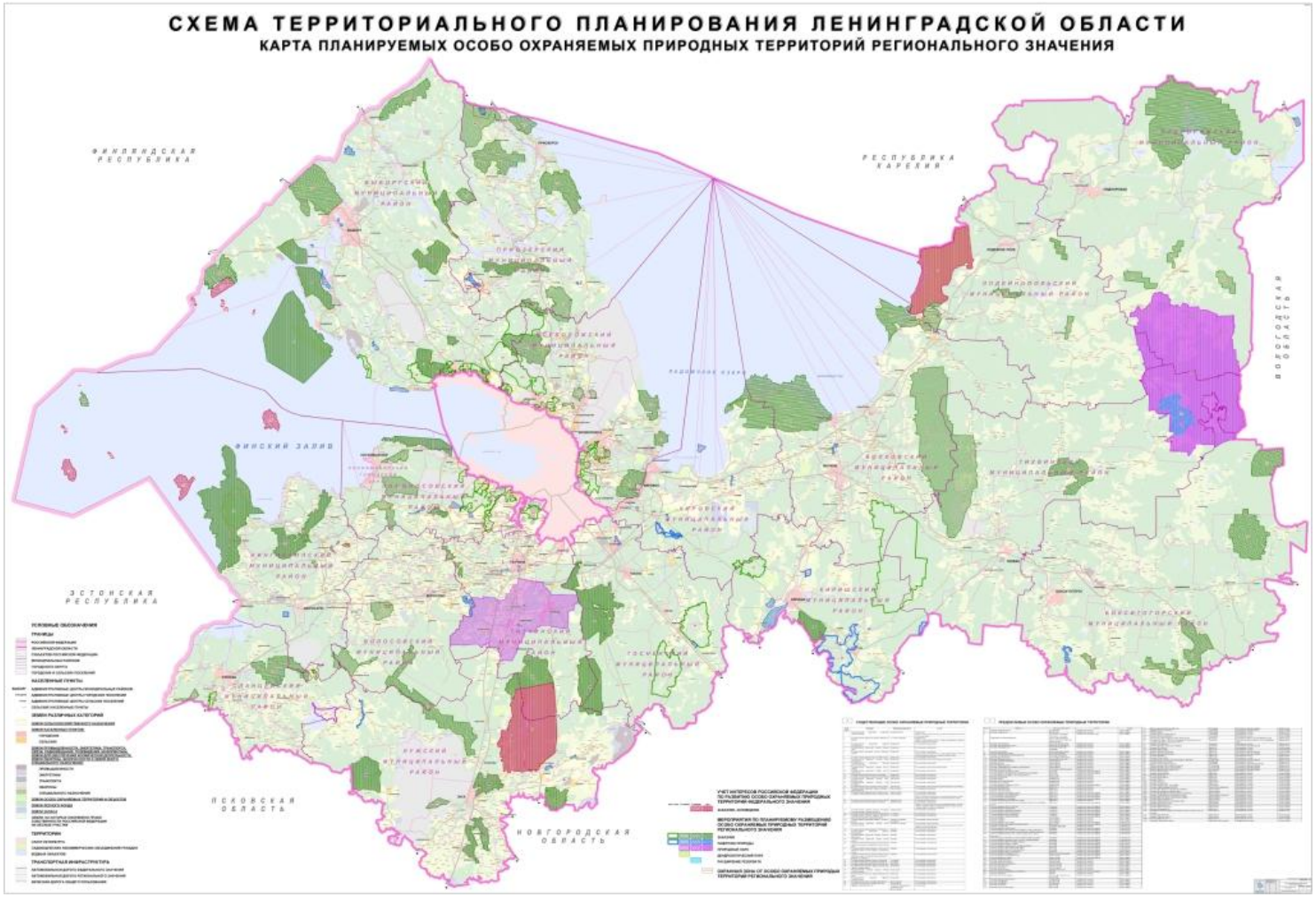
— places of animal aggregation (especially migrating bird feeding and stopover sites, mass nesting sites, seal pupping sites and rookeries, salmon spawning sites, bats mass wintering grounds);

— habitats of rare and endangered species of flora and fauna, geographic range of rare and endangered soil types;

— natural phenomena of limited distribution within particular region (rare and unique natural features);

2. Preservation of the "corridors" between major PAs to ensure the redistribution of the various species of flora and fauna, and other processes of ecosystems self-maintenance;

3. Ensuring ecological interactions between the Leningrad Region PAs and PAs of the adjacent regions of the Russian Federation including preservation of sites of the least transformed ecosystems at the boundary of the Leningrad Region and St. Petersburg.



Map of Leningrad Region: it shows PAs in existence and those in the planning stage.

with the support of

Long-term development of the Leningrad Region PAs of regional significance is specified by the Leningrad Oblast Territorial Planning Scheme (hereafter the Scheme), approved by the Government of the Leningrad Region Executive Order № 460, as of 29.12.2012 "On approval of the territorial planning of the Leningrad Oblast." The Scheme provides for establishing, by the year 2035, 114 new PAs of regional significance, with the PAs total area being enlarged for more than 800,000 hectares.

The above will extend the PAs area up to ≅ 16% of the total area of the Leningrad Region, which, in turn, will enable to preserve the uniqueness and diversity of natural ecosystems in the region and contribute to the creation of satisfactory and healthy environment in the Leningrad Region.

5.3.3.1 Performed Activities

Committee on Natural Resources of the Leningrad Region has implemented the following activities as part of "Support and development of SPNA of the Leningrad Region for 2011-2015" long-term regional target program:

1. Executive order by the Government of the Leningrad Region № 157, as of 14.05.2012 approved a new PA: "Kivipark" State Nature Reserve (Zakaznik)

2. As part of "Support and development of SPNA of the Leningrad Region, 2011-2015" long-term target program the following was accomplished:

- data of comprehensive environmental survey of the territories justifying the establishment of the "Mouth of the River Svir" regional Nature Reserve as part of a wetland of international importance (Ramsar site), including the state nature reserve "Nizhnesvirsky" were prepared;
- a draft project for inclusion of two PAs ("Kokkorevsky" and "Maurier" Regional Nature Reserves located on Lake Ladoga into the long-term target program "Support and development of protected areas of the Leningrad Region for 2011-2015";
- a project on planning of future PAs as part of the Territorial planning scheme of the Leningrad Region up to 2035 is under development right now;
- a draft regulation on "Kurgalsky Peninsula" wetland was developed and submitted for approval to authorized federal and regional state authorities;
- a methodology of ecological survey was developed, and a survey of islands in the "Kurgalsky" zakaznik was carried out;
- landscaping was carried out at "Lebyazhy" and "Kurgalsky zakazniks
- a project for "Vyborgsky" reserve landscaping was developed;
- a project for "Berezovye Islands" reserve spacial planning was developed;
- updating of the regulations on "Berezovye Islands" and "Vyborgsky" reserves of regional significance is being carried out;
- activities on assessment of water quality in the eastern part of the Gulf of Finland and Lake Ladoga within the Leningrad Region territory are being carried out;

- activities on monitoring of water quality in the major rivers of the Leningrad Region are being carried out;
- identification and mapping of existing natural habitats is being carried out;
- a comprehensive "Red" list of endangered species of the Baltic Sea is being kept.

5.3.3.2. International Projects

1. **The "People, Nature and Harbors" project** implemented under the "South-East Finland - Russia" ENPI Program (part of the TACIS program) (2007-2008) **has been completed**.

The objective of the project was to reduce the human impact on the PAs in the eastern part of the Gulf of Finland basin that has the status of wetlands of international significance (Ramsar sites).

The scope of funding - 250 000, 00 Euro

The results obtained:

The research of underwater plant communities, seals, migratory and nesting birds were carried out. Special attention was given to assessing the impact of transport infrastructure on marine ecosystems.

The results of the monitoring allowed preparing data and information to be included into the SPNA pilot management plans. The data and information are available for the public, authorities and businesses and are being used for both SPNA management and planning of social and economic activities.

In the pilot areas ecological trails were laid out, nature trails were arranged, a preliminary design of a Visitor-Center in Kurgalsky sanctuary was developed.

Seminars and study visits to Finland were organized for the stakeholders; pamphlets and informational materials were issued.

2. The "Biological research on the islands of the Russian part of the Gulf of Finland comprised into the Ingermanlandsky National Reserve" project has been completed. The project is running already 4 years and has been carried out as part of the Agreement between the Nord Stream AG Company and "Biologists for Nature Conservation" St.Petersburg NGO during 2010 - 2013

The scope of funding - around 140 000 Euro

The results obtained

Altogether 7 field expeditions during summer seasons in 2010 -2013 - Inventory and identification of biological species diversity that are inhabiting the islands and their surroundings were carried out.

Inventory and identification of species diversity of birds on the islands and the territories/water areas adjacent to the route of the gas pipeline during seasonal migrations;

A list of bird species on the islands with their division into nesting and migrating, as well as commercial and rare, protected species was compiled;

Brief environmental characteristics of the most numerous regional species of birds with specifying the prey items, duration of stay in the area, timing of nesting, fertility, and population dynamics in recent years were compiled;

The sites of birds' mass aggregation were identified (nesting colonies, feeding areas and areas of the migrants' aggregation).

The lists of vascular plants species, macroalgae, birds, fishes and mammals were compiled; the estimate of fishery resources that serve as food for seabirds and commercial species was carried out; inventory of the grey seal and ringed seal in the rookeries on the Seskar, Maly, and Hallikarti and Vigrund islands was carried out.
Report on the project was compiled

3. The "Long journey. The demonstration of a practical approach to the protection of waterbirds on the flyway: Russian - Dutch cooperation" (2008-2011) Russian-Dutch project has been completed

The project was implemented as part of the Agreement on cooperation between the Service for Land and Water Management at the Dutch Ministry of Agriculture, Nature and Food Quality and the 'Wetlands International' - an international non-governmental organization for the protection of wetlands.

The scope of funding of: 220 thousand euros from BBI-MATRA; additional funding was provided by the Wetlands International as part of the GEF African-Eurasian flyway project.

The results obtained

The information acquired on the most important wetlands will provide for the establishment of new protected areas, of ecological networks and for assistance in the protection of water birds on the flyway.

The information acquired on the numbers and distribution of waterfowl will enable hunting management bodies of the Russian Federation to pass over to sustainable use of hunting resources.

Development of environmental cooperation in the North-Western region between Russia and the Netherlands and other European countries.

Officials and non-governmental organizations, experts and nature enthusiasts started providing more profound support in the area of wetlands and their biodiversity protection.

5**. The "Development of a network of PAs: 'Ingermanlandsky' Reserve" has been completed.** The project was carried out as part of an Agreement between the World Wildlife Fund, Sweden and "Biologists for the protection of nature" St. Petersburg NGO (15.04.09 - 31.07.11, extension up to 31.05.2012)

Project partners:

Experts from the Swedish Environmental Protection Agency, Department of specially protected natural areas at the Committee on Natural Resources of the Leningrad Region.

The scope of funding - 184 700 SEK

The results obtained

Data of comprehensive environmental survey of the areas justifying the legal status of PA of federal significance assigned to such areas ("Ingermanlandsky" State Nature Reserve) were prepared and brought into accordance with the Russian Federation Law "On State Ecological Expertise".

Additional studies of the fauna and flora in the Russian islands of the Gulf of Finland, that are included in the Reserve under establishing were carried out. The studies were conducted in the period from 04 to 10 June, 2011 and from 01 to 7 July, 2011;

Data are submitted to the State Environmental Review Commission at Rosprirodnadzor (28.09.2011);

A positive conclusion by the State Ecological Review Commission was obtained as the result of the review of the "Data of complex environmental survey of areas justifying the legal status of a specially protected area of federal significance assigned to the area - ‘ Ingermanlandsky’ State Nature Reserve. It was approved by Order of the Federal Supervisory Natural Recourses Management Service № 67, as of 22.02.2012.

6. **"Strengthening the Marine and Coastal Protected Areas of Russia" UNDP / GEF Project (2009-2013) has been completed.** The project was implemented as a result of collaboration between the Global Environment Facility and the Russian Ministry of Natural Resources.

The scope of funding - 1,137,000 rubles

The results obtained

A list of potential stakeholders that could be interested in participation in the rehabilitative and relief and rescue activities aimed at the preservation of wildlife and habitats, as well as in the emergency response operations at sea and the coastal areas of land, which will have an impact on MCPA of the Gulf of Finland, was compiled.

The format of cooperation and protocol for coordination of interactions between stakeholders to the end of involving them into the rehabilitation and rescue operations were defined.

A handbook on the rehabilitation and rescue operations aimed at preserving the sites of wildlife and their habitats in the course of emergencies mitigation at sea and coastal land areas that have an impact on the PA was written.

A group of 25 experts and representatives of other interested parties was trained. Later on the group can be involved in the rehabilitation and rescue operations in the

MCSPNA in the Gulf of Finland (including the Ingermanlandsky State Nature Reserve that is under establishing now).

"Marine and coastal protected areas of Russia" website has been upgraded.

7. **"Rivers and fish - our common interests" project on rehabilitation of salmon rivers in the northern part of the Gulf of Finland is being implement as part of EU ENPI program - (2007-2014).**

The scope of funding - 387 000, 00 Euro

Comprehensive hydro-biological and ichthyological research in the salmon rivers of the Leningrad Region have been carried out: projects for arrangement of favorable conditions for migration of salmon were drafted.

Project partners: GosNIORKh, Committee on Natural Resources of the Leningrad Region, the Committee for Environmental Protection and Natural Resources of the Leningrad Region "Vyborgsky district" municipal administration, the Finnish Game and Fisheries Research Institute, Center for Forestry of the South-Eastern Finland, Fisheries Centre of South Karelia (Finland).

The results obtained:

Comprehensive hydro-biological and ichthyological research in the Gladyshevka, Seleznevka, Buslovka, Gusinaya, Chernaya (Malinovka) rivers were conducted, as well and faunal and floristic studies of forest ecosystems that were carried out in the basins of the above mentioned rivers. On the basis of the research results there were reports drawn out.

3700 specimens of juvenile salmon were tagged and 20 000 juvenile salmons were released into the Gladyshevka river.

Two environmental camps in "Gladyshevsky" sanctuary and in the Vyborgsky district, Leningrad region, at the rivers Seleznevka, Buslovka, Gusinaya, Chernaya (Malinovka) were set up. An ecological trail along the Buslovka river was designed.

A plan of activities to create favorable conditions for migration of salmon in the river Seleznevka was worked out. Public hearings on the project were held.

A project of Regional State Nature Reserve (Zakaznik) at the river Malinovka was developed; it has been included into the scheme of the Leningrad Region territorial planning scheme.

The project website has been designed. Project information has been presented on 104 information sites, four articles were published, two video films were released, and information booklets were issued.

9. ***"Clean rivers into a healthy Baltic Sea"*** **two-year EU project was started up as part of the "South-East Finland - Russia" ENPI cross-border cooperation program**.

Objectives of the project

1. To create basic conditions for improvement of water quality and restoration of natural biodiversity of the river Luga: this will help to reduce nutrient loads to the Baltic Sea.

2. To promote the development of Russian-Finnish cooperation at the municipal level, scientific, educational and community organizations, and enterprises of different ownership forms to the end of protecting the environment, improve the quality of life and protection of water sources of the Baltic Sea basin.

The project tasks

1. To collect and analyze information on the environmental status and biology of the Luga River, to make a list of the "hot spots" and establish a reasonable system of long-term goals to improve the river water quality and biodiversity.

2. To assist the regional and municipal authorities and enterprises to ensure enhancement of the environmental management of rural areas and water bodies expertise.

3. To promote environmental awareness and responsibility of people living in the basin of the river Luga, to initiate and support environmental actions involving all groups of the population.

4. To strengthen cooperation between the organizations, businesses and social groups in the pilot areas of the Leningrad Region and South-Eastern Finland in the field of environmental protection.

Pilot territory: the upper and middle basins of the River Luga within the Luga district area of the Leningrad Region

Project Duration - 2 years; beginning - December 12, 2012

The total budget of the project - 683.796 €; scope of the EU grant - 544.276 €

Co-financing by partners - 139.520 € (20, 40%)

Partners and participants of the project:

- Lead Partner: Luga Municipal District Administration, Leningrad Oblast
- GNU Northwest Research Institute for Mechanization and Electrification of Agricultural Sector at the Russian Academy of Agriculture
- St. Petersburg State Agrarian University
- The "Association for the promotion of field studies and the development of rural areas" Regional public organization
- Finish Agrifood Research (Institute of Agriculture and Food), University of Applied Sciences in Mikkeli, Finland
- "Partisan" Agricultural enterprise
- Committee on Agriculture and Fishery Sectors, Leningrad Region

It is planned that the project will allow carrying out a detailed study of the ecological status and biodiversity of the upper basin of the Luga River, identifying potential and actual "hot spots" and an interactive map of the upper ‘Poluzhye’ will be compiled.

In the agricultural sector the project will provide for developing the most effective technology for handling manure in accordance with the Russian environmental legislation and HELCOM guidelines.

An important component of the "Luga-Balt" project will be associated with effective involvement the public, school children and younger generation. Students from four Luga district schools will be involved into the hands-on activities that will include monitoring of water bodies and coastline.

For the pilot schools to be able to carry out this important task they will be provided with specially purchased kits of analytical instruments; special tours, excursions, environmental lessons and trainings will also be organized. In summer, the district environmental international summer schools will be opened. The practical part of the project also includes activities on cleaning and restoration of coastal recreation areas in the city of Luga, and in Tolmachevskoye and Osminskoe rural settlements.

5.3.3.3. Red Data Book of the Leningrad Region

Red Data Book of the Nature of Leningrad Region was published in three volumes, which are dealing with PAs of theLeningrad Region (Volume 1), plants and fungi (Volume 2), animals (Volume 3).

Red Data Book of the Leningrad Region soils was published in 2007.

Executive decree of the Committee on Natural Resources and Environmental Protection of the Leningrad Region "On the order of keeping the Red Data Book of Nature of the Leningrad Region" # 12, as of February 25, 2005 approved the following :

1. the list of animals that are recommended to be included in the Red Data Book of Nature of the Leningrad Region. The list comprises 602 species,

2. the list of plants and fungi that are recommended to be included in the Red Data Book of Nature of the Leningrad Region. The list comprises 201 species of vascular plants, 56 species of mosses, 71 species of algae, 49 species of lichens, 152 species of fungi and slime molds

5.3.4. Pskov Region

In 2011, the network of PAs in the Pskov Region accounted for 42 entities:

- "Peipsi lakeside lowlands" - a wetland of international importance (Ramsar site).
- Three PAs of federal significance (the "Sebezhsky" national park, the "Polistovsky" State Nature Reserve, the "Remdovsky" State Nature Zoological Reserve (Zakaznik).

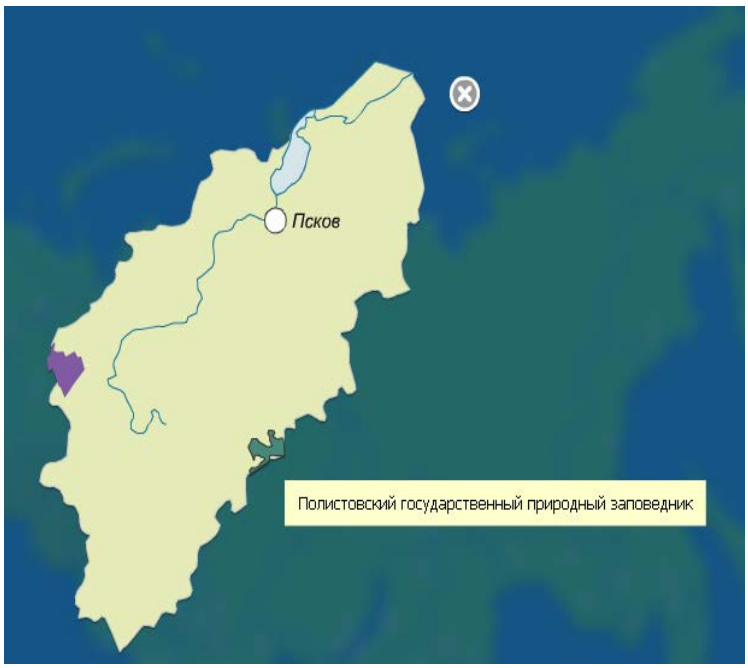
- Twenty eight PAs of regional significance (11 State Nature Zoological Reserves of regional significance , 15 nature monuments, two resorts of regional significance ("Cherekha" and "Blue Lakes" rehabilitation resorts).
- Ten PAs of local significance.

The PAs of federal significance account for 162.7 thousand hectares, PAs of regional significance cover 230.0 thousand hectares, PAs of local significance totally accounts for 15.5 hectares, the "Peipsi lakeside lowland" wetland of international significance (excluding "Remdovsky" sanctuary located within the lowland area) account for 17.69 ha. The area of the federal and regional PAs occupies 410,390 hectares, which is 7.4% of the territory of the Pskov region.

PAs of the Pskov region were established for the preservation, restoration, reproduction and rational use of economically, scientifically and culturally valuable game animals, as well as rare and listed in the Red Data Book of the Russian Federation species protected under international agreements concluded between the Russian Federation and foreign countries; they were established to preserve habitats, migration routes, nesting and wintering grounds, for maintaining the overall ecological balance.

Natural zoological Reserves were established to achieve the following objectives:

- preservation and reproduction of game fauna for future natural dispersal to the surrounding hunting grounds;
- birds and animals habitat conservation as a necessary condition of their existence and reproduction;
- preservation of natural ecosystems in the area of limited economic activities.



PAs of federal significance in the Pskov Region.

For the purposes of conservation of a number of valuable landscapes and natural sites, as well as for a more even distribution of PAs in the territory of the region it has been proposed to expand the existing network. Maintanance of the natural ecological 'backbone' and establishment of new protected areas, in particular nature parks, will promote the development of tourism, will help regulating the flow of tourists and arranging ecological and nature trails.

The first stage of the Territorial planning scheme implementation provides for establishing a PA of regional significance, namely "Illarionov solitude" with a total area of 351 hectares in Gdovsky district by amalgamating the existing "Sorokovoy Bor" nature monument and "Lake Velino" and "Lake Dolgoe " nature monuments that are currently being designed.

It is also proposed simultaneously with the implementation of the Scheme to establish a nature park of regional significance in the central part of the Pskov region – namely, within Sudomskoy upland located in Dedovichsky, Porkhov and Novorzhevsky districts.

Red Data Books of the Pskov region

Currently, the Red Data Book of the Pskov region is under development. The list of animals and plants listed in the Red Data Book was approved in 2012. Draft manuscripts containing description of species for the Red Data Book of the Pskov Region include all the necessary information on the species, their habitats, distribution within the territory of the Pskov region, status of the species, etc.

5.3.5. `Novgorod Region

At present, the total area of PAs in the region makes 277,356.3 hectares, accounting for 5.1% of the Novgorod Region territory. At the beginning of 2012 Novgorod Region comprised the following categories of PAs:

- State Nature Reserve (Zapovednik) (1)
- National Park (1)
- State Nature Reserves (Zakaznika) (6)
- Nature Monuments (108).

Of these, three areas are of federal significance:

- National Park "Valdajsky"
- State Nature Reserve (Zapovednik) "Rdeysky"
- Nature Monument " Grove of Academician N. Zheleznov. "

The other protected areas have the status of regional PAs.

In the Novgorod Region, in accordance with the scheme of territorial planning of 29.06.2012, it is planned to create 66 PAs of regional significance with total area of 247,669.4 hectares:

- 2 Nature Parks (15,520 ha)
- 15 Nature Reserves (Zakazniks) (204,900.4 hectares)
- 38 Nature Monuments (24695 ha)
- 11 wetland sites (2,554 ha)

Including the PAs under development the total share of all PAs in the region will account for 9.6% of the Novgorod Region territory.

Development of PAs in the Novgorod Region is aimed at conservation of valuable natural landscapes, wetlands, conservation and restoration of biodiversity in the region, and sustainable development of the region. It is also necessary to preserve areas that are strongly underdeveloped and facing a heavy anthropogenic impact. It is expedient to take under protection the key habitats of rare and endangered species of fauna, particularly those listed or proposed to be listed in the Red Data Book.

It is also proposed that the Scheme of the Novgorod Region territorial planning should also delineate such PAs as particularly valuable cranberry bogs. The list of the most valuable wetlands contains 11 sites with a total area of 2,554 hectares.

Red Data Book of the Novgorod Region

Directorate for Management of PAs reported that the process of establishing a regional Red Data Book of the Novgorod Region is in its final phase.

Summer 2013 has been the last field season, and the discoveries will be included into the Book and taken into account when identifying the status of the protection of the species.

The list of flora and fauna species was approved by the Novgorod Region Government on 12.07,2011

5.3.6. Kaliningrad Region

The existing network of protected areas in the Kaliningrad Region includes:
3 PAs of federal importance:

- The "Curonian Spit" National Park
- 2 resort towns (Svetlahorsk-Otradnoe and Zelenogradsk).

63 PAs of regional significance:

- 1 "Vishtynetskoye" Nature Park
- 2 State Nature Reserves (Zakazniks) : "Dune" and "Gromovsky"
- 60 Nature Monuments.

Currently, the network of PAs in the Kaliningrad Region is not sufficient to preserve the natural diversity and to carry out the habitat-forming functions. The total area of the existing PAs in the Kaliningrad Region is 67863.4 hectares, which accounts for 4.49% of the entire region.

Nature monuments altogether cover an area of 0.18 hectares. Nature monuments used in the Kaliningrad Region mainly for scientific, educational and conservation purposes account for 59. Each of them is provided with a special passport. Most of the Nature monuments are of botanical profile. They are: separate trees, notable forest areas, and preserved park arrays of East Prussia located both in the regional center and in the districts of the Kaliningrad Region.

The Krasnaya River section of 18 kilometers (from the village Tokarevka up to the state border with Poland) was identified as an aquarious hydrological natural monument.

The main purposes of PAs establishing in the Kaliningrad Region:

1. preservation of unique natural landscapes and features, such as:

- ecosystems of coastal areas,
- significant wetlands,
- botanical items,
- hydrological systems,
- natural and cultural sites.

2. Preservation of biodiversity and certain rare species of plants and animals in need of protection.

3. Development of sustainable tourism infrastructure in the Baltic Sea area and in the region with taking into account the protection of natural sites. Establishment of international tourism by creating in the long term prospective cross-border PAs in the region, such as the "Curonian Spit" National Park.

The Scheme of the Kaliningrad Region territorial planning, approved by the Government of the Kaliningrad Region of 2 December, 2012, involves the expansion of the network of PAs and the establishment of new sites covered by protection. The first stage envisages setting-up the "Vistula Spit" comprehensive sanctuary (4000 ha) and the "Balga" natural park (6465 ha). By 2025, according to the Scheme of territorial planning the total share of SPNAs will account for 2.6% of the total land area of the regional territory (39.8 million hectares)

Map of the Kaliningrad Region: it shows PAs in existence and those in the planning stage.

with the support of

Red Data Book of the Kaliningrad Region

The first edition of the Red Data Book of the Kaliningrad Region was published in 2010. The Book is a list of rare and endangered animals, plants and fungi of the Kaliningrad Region, which includes:

- 11 species of mammals,
- 43 species of birds,
- 1 species of reptiles,
- 1 species of amphibians,
- 4 species of fish and cyclostomes,
- 23 species of insects,
- 6 species of molluscs,
- 83 species of vascular plants,
- 4 species of mosses,
- 9 lichen species
- 19 species of fungi.

Each species is supported by illustrations, distribution map, the status and category of rarity are identified; brief description, information on the numbers and the necessary measures of protection are also provided.

There are no protected areas within the water areas of the Kaliningrad Region that would fall within the NATURA 2000 program; however, there are protected areas significant both from the point of view of environmental protection and recreation that are adjacent to the coastal zone. These territories include the "Curonian Spit" National Park andNature Reserves. The "Dunny" Complex Nature Reserve (Zakaznik), located in the very north of the Kaliningrad Region in the delta of the Neman Riva, is set at the shoreline. The "Dunny" Nature Reserve occupies a small area and is entirely confined to the Nemuna's Delta north of the Russian-Lithuanian border.

The "Curonian Spit" National Park is located on the Curonian Spit. The park has its water protection zone of 1 km wide in the territorial sea and 1 km in the waters of the Curonian Lagoon. The situation with the Vistula Spit is more complicated due to the fact that the status of a protected area has not yet been assigned to it.

The Vistula and Curonian Lagoons are still considered as "hot spots" in the Baltic Sea. That's why a number of countries in the region have voiced out a proposal to increase the proportion of PAs in the coastal zone of up to 20%. The "Curonian Spit" National Park of federal significance and future "Vistula Spit" Nature Park of regional significance are already included in the BSPA HELCOM. The regional "Dunny" Nature Reserve located on the coast of the Curonian Lagoon, on the border with Lithuania, could be considered as a candidate PA for inclusion into the BSPA.

with the support of

5.3.7. The Republic of Karelia

As of January 1, 2013, there are 147 PAs within the territory of the Republic of Karelia with a total area of 874.1 thousand hectares, which is 4.8% of the territory of the republic.

The catchment area of the Baltic Sea comprises 126 PAs, including: 5 PAs of federal significance and 121 PAs of regional significance.

Among the PAs of federal significance there are the following sites: the "Kivatch" Reserve, the "Kizhi" Reserve, the "Olonetsky" Reserve, the "Vodlozersky" National Park, the "Marcial Waters" recreational and rehabilitation forests. The structure of PAs of regional significance is as follows: 23 State Nature Reserves (Zakaznika), 96 Nature Monuments, 1 Nature Park, and 1 botanical garden.

On November 10, 2001 the "Vodlozersky" National Park was included into the UNESCO World Network of Biosphere Reserves; it was given the status of a biosphere reserve. “Kalevala” National Park is included into the "Green Belt of Fennoscandia", it is being considered as a candidate for inclusion into the UNESCO List of the World Heritage Sites.

At the moment, the existing protected areas occupy 4.5% of the total area of the republic. Together with the PAs that are planned to be established (they will occupy 9.1% of the total area of the region) the overall proportion of protected areas will be 13.6% of the republic of Karelia territory.

The priority tasks assigned to the network of PAs of the Republic of Karelia are the following:

1. Preservation of the unique natural reference ecosystems, which include the following sites and features:

- geological sites (reference system of skerries, unique geological sections of rocks and glacial landscapes)
- valuable ecosystems of Lake Ladoga,
- Intact and undisturbed forests, including deciduous forests,
- wetlands as part of lake and river systems of Karelia,
- lake archipelagos of Ladoga and Onega lakes system.

2. The conservation of biological diversity and protection of rare species of plants and animals,

3. Preservation of unique cultural landscapes, monuments of history and archeology in Karelia,

4. Sustainable development in the social and economic spheres while deliberately preserving natural systems in an undisturbed condition; development of ecological tourism.

Since 2007, according to the "Town Planning Code of the Russian Federation", the "Scheme of Spatial Planning of the Republic of Karelia" has been approved and is being implemented (approved by the Republic of Karelia Government Resolution № 102-P, as of July 6, 2007, as amended by the Decree of the Government of the Republic of Karelia № 89-P, 22.03.2012).

According to the current version of the "Schemes of Spatial Planning of the Republic of Karelia" in force, the Republic plans to establish 58 PAs of regional significance. The total area of the PAs in the planning stage is 1,601,100 hectares, which is 8.9% of the area of the Republic.

In the course of implementation of the Scheme of territorial planning three SPNAs of regional significance have already been established:

2008 – the "Voinitsa" integrated (landscape type) nature reserve (zakaznik) of regional significance in the Kalevala district with a total area of 8.3 thousand hectares,

2009 – the "Syrovatka" integrated (landscape type) nature reserve (zakaznik) in the Kem district with a total area of 31.3 hectares.

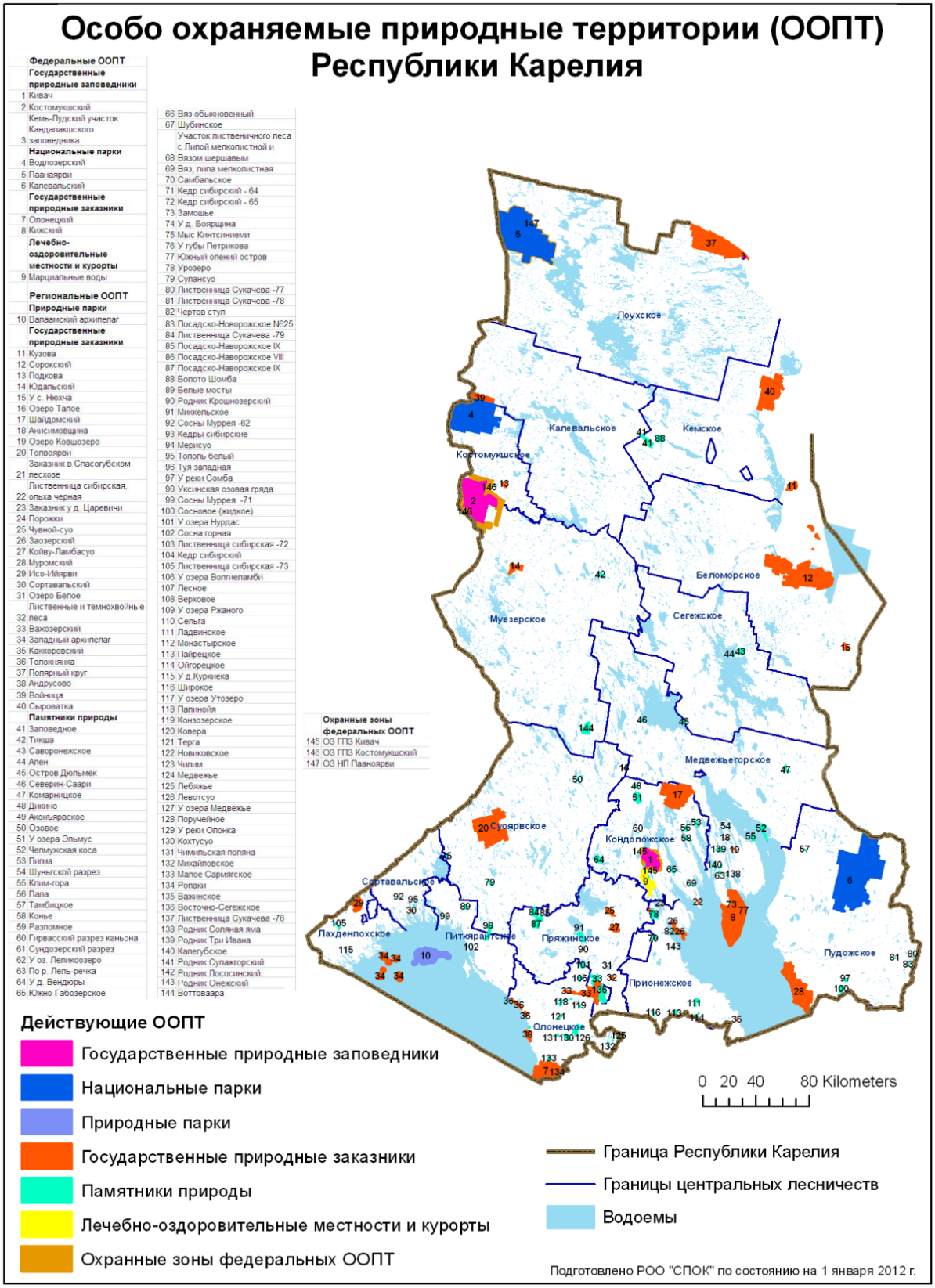
2011 – the "Vottovaara" nature monument in the Muezersky district with a total area of 1.6 thousand hectares.

There are plans to establish, as the first stage, the following PAs within the Republic of Karelia Baltic Sea catchment area:

- the "Chukozero" integrated (landscape type) nature reserve (zakaznik) with the total area of 58.3 thousand hectares,
- the "Yangozero" integrated (landscape type) nature reserve (zakaznik) with the total area of 26.9 thousand hectares.

There are also planes to develop a second line of PAs:

- the "Tulos" integrated (landscape type) nature reserve (zakaznik) with the total area of 30.0 hectares;
- the "Koitajoki" hydrological nature reserve (zakaznik) with the total area of 32.4 hectares;
- the "Lake Kyulyuk-Pertalampi" nature monument with the total area of 2.1 hectares;
- expansion of the existent "Yudalsky" landscape nature reserve (zakaznik) with the total area of 27.3 hectares,
- the "Zaonezhsky" nature park with the total area of 119.6 thousand hectares,
- The "Varguno" integrated landscape nature reserve (zakaznik) with the total area of 11.0 hectares,
- the "Zaoenzhsky" integrated landscape nature reserve (zakaznik) with the total area of 110.0 thousand hectares,
- the "Korbozersky" biological (zoological) nature reserve (zakaznik) with the total area of 15.0 hectares,
- the "Lapinyoki" integrated (landscape type) with the total area of 6.7 hectares,
- the "Old-growth forests - Suistamo" nature reserve (zakaznik) (landscape type) integrated sanctuary with the total area of 4.0 hectares,
- the "Pyalma River" integrated (landscape type) nature reserve (zakaznik) with the total area of 17.6 hectares,
- The "Tuloksky" biological (zoological) integrated nature reserve (zakaznik) with the total area of 16, 0 thousand hectares,
- The "Välimäki" nature monument with the total area of 1000 hectares.



Map of the Republic of Karelia including PAs.

The Red Data Book of the Republic of Karelia

The latest edition of The Red Data Book of the Republic of Karelia was published in 2007 by the researchers of the Karelian Research Centre at the Russian Academy of Sciences and the Petrozavodsk State University.

Currently, a new edition of The Red Data Book is being prepared; the publication of the updated Book is needed since the previous editions of The Red Data Book contained a limited scope of map-based data on the species habitats. The monitoring of the red-listed endangered species and their habitats is needed to be established, it is also necessary to identify the structure and procedures for their protection.

5.3.8. Collection of information, analysis and assessment of monitoring of the salmon rivers status and restoration the populations of the Baltic salmon

Compiled by Dr. Sergey Titov, Gos. NIORKH

At present, reproduction of Atlantic salmon in the Baltic Sea basin remains at an extremely low level due to long and intensive human impact (regulation of rivers, devastation of young salmon habitats, pollution of rivers with industrial and household wastewater, and intensive fishing in rivers and in the sea). Currently, the populations of Baltic salmon remain in 4 rivers flowing into the Gulf of Finland on the territory of the Russian Federation (Fig. 1).

Fig 1. Russian salmon rivers of the Baltic Sea basin with marks of today status of salmon populations:
red color – natural population, which is being partly supported artificial breeding at a fish farm;
yellow color – population is supported only by means of artificial breeding at a fish farm;
violet color – natural population is being reestablished in a potentially salmon river.

In two of the four Russian salmon Rivers — Narova and Neva — there is no the native reproduction of salmon at all. The most probable reason for the lack of natural spawning in the **Neva River** might be unsatisfactory condition of spawning grounds in the Neva or their total devastation. It is quite possible, because intensive dredging was done during the last decades in the area of salmon spawning grounds in the Neva. Dredging could lead to devastation of natural bottom indispensable for salmon spawning.

In the **Narova River** salmon natural spawning grounds were totally devastated as a result of the construction of the dam of the Narva HP station in 1954. And there are no salmon spawning grounds at the 12-kilometer-long section below the dam.

Thus at present the salmon stocks in the Neva and Narova Rivers are supported solely by the activities of salmon hatcheries. Each of the hatcheries releases about 100 thousands of smolts annually.

Natural reproduction of salmon is observed in two rivers — the Luga and the Gladyshevka.

River Luga in Novgorod Oblast and Leningrad Oblast is the most important wild Salmon River flowing to the Gulf of Finland. The river starts from the place near the Lake Samino (Novgorod Oblast) 359 km from the sea (Luga Bay). The salmon production of the river Luga forms an important part of the salmon production of the whole Gulf of Finland. However, the reproduction of wild salmon is decreasing since the 1950s, mainly due illegal fishing.

Until recently the Luga salmon was been the least studied in the Russian part of the Baltic Sea. And there was not data concerning the abundance of the salmon population. Comprehensive research was initiated in end of 1990-th by GosNIORKh. Smolt production nave been assessed using smolt trapping (fig. 2), installed in the lower part of the river. This allowed getting direct and accurate data not only on the timing of downstream migration of young salmon, but about the number of the “wild” population as well. Monitoring of the smolt abundance in the natural population of Luga River had been conducted over the last 12 years. The number of smolts of natural origin ranges from 2000 to 8000 individuals (Titov et al., 2007) and remains stable at a low level (Fig. 3).

Fig. 2 — The smolt trapping at the Luga River

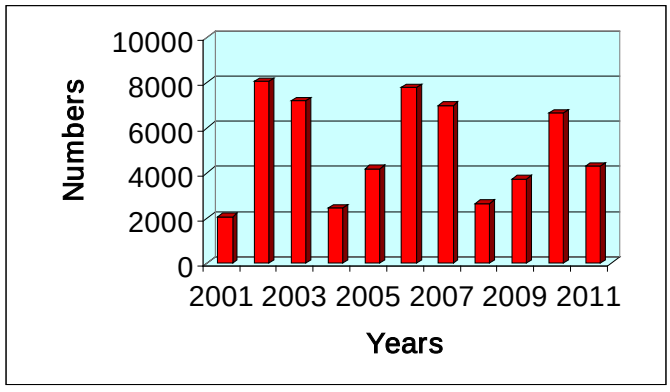


Fig. 3 — The salmon smolt production in the Luga River (2001-2011)

Taking into account that about 10% of salmon spawners from the natural population return to the river, we can estimate their numbers as about 500 specimens annualy.

Besides young salmon from the natural population, from 12 to 40 thousand young salmon reared at the Luga fish farm migrate from the river to the sea. It has to secure the return of 600 – 2000 (1-1,2 thousand in average) farmed spawners to the River.

The modern number of the population is extremely low for such a river as the Luga. For estimating potential possibilities of the Luga research was conducted of spawning and nursery grounds. Key spawning and fattening areas turned out to be located on 3 rapids of the main riverbed, - Sabskiye, Storonskiye and Kingiseppskiye. The total area of those places makes about 700 000 m². Spawning grounds situated in the vicinity of Sabskiye and Storonskiye rapids are in a good condition and can be fully used by salmon spawners for spawning. The situation is a little different with the spawning grounds of Kingiseppskiye rapids. Proximity of a large town of Kingisepp resulted in pollution of a considerable part of the rapids. Rocks and pebbles at the rapids are covered with water vegetation. The bottom of spawning grounds is littered with trash and metal, what makes them unsuitable for spawning to a large extent. According to our estimates, maximum one third of Kingiseppskiye rapids can be used for spawning at present.

For increasing the productive capability of the Luga, it is indispensable to carry out works on restoration/melioration of spawning grounds located in the area of Kingiseppskiye rapids. At the first stage those works are to include cleaning the rapids from litter and metal. Then restoration of the spawning nursery grounds should start, i.e. changing of the profile of the rapids (where necessary) and addition of rocks and pebbles.

It is possible to increase the effectiveness of the use of natural spawning grounds of the Luga River (given the lack of large numbers of spawners) by installing artificial redds on numerous empty spawning grounds of the Luga; first of all, on Sabskije and Storonskije rapids. At present, there is some experience of doing such a job on the rivers of Cola Peninsula and Karelia. The results of the first years showed that the effectiveness of developing eggs in such structures significantly surpassed the percentage of eggs developed in natural redds. The structures themselves are cheap to make and maintain.

Nevertheless, the area of remaining spawning grounds, including Sabskiye and Storonskiye rapids, make not less than 400-450 thousand m². It can secure the population of salmon population in the Luga minimum 15-25 thousand spawners.

A relatively small **River Gladyshevka** belongs to the lake and river system located on Karelian Isthmus in 70 km from St. Petersburg. It flows from Lake Gladyshevskoye, and merges with the Roshinka River thus forming the Chornaya River flowing into the Gulf of Finland. The system Gladyshevka-Chornaya is the only river system in the northern part of the Gulf of Finland in the Russian Federation, where – according to reliable data – there used to be a local population of Atlantic salmon.

There are some notes on several cases of the catch of mature specimens in the Chornaja River in 1961 and 1962, and in the Roshinka River in 1949 (Kazakov, Petrenko, 1987). Local people reported that in 1972 a salmon of 20 kg was caught in the mouth of the Velikaya River, which flows into Lake Gladyshevskoye.

In the end of 1970s – beginning of 1980s, some attempts were made to reestablish the population of Atlantic salmon in the Gladyshevka River. For several years in rivers

Chornaya and Roshinka young salmon of the Neva origin was released (Kazakov, Petrenko, 1987). There was some success in returning spawners to the Gladyshevka River, but unfortunately, there were no data obtained that would give the evidence of reestablishment of natural spawning in this watercourse.

In the end of 1990s, the Gladyshevka was added to list of potential salmon rivers within the ICES Action Plan on salmon. Reestablishment of natural salmon regeneration in the Gladyshevka River became possible due to the implementation of the Program of conservation and restoration of valuable salmonid species and European pearl mussel in the basin of this river. The Program was developed and is being implemented by GosNIORKH in cooperation with the reserve “Gladyshevskiy”.

As a result of the research of spawning and hatching areas of the Gladyshevka River it was established that along the whole river (17,8 km) about 8000 m^2 are suitable for spawning and young salmon growth. At the same time, about 5800 m^2, i.e. almost two thirds of all spawning and hatching areas of the river, are located at two rapid sections situated in the upper and lower parts of the river.

The data of the analysis of chemical composition of the water in the Gladyshevka River confirmed the conclusion that environmental condition of the river and chemical composition of the water is no barrier for salmon species despite of the excess of some maximum permissible concentrations.

The results of hydrobiological investigation showed that development of food stock is at a high level and can support maximal density of young salmon (up to 100 specimen/100 m^2). Therefore, potential environmental capacity of nursery and growth grounds of the Glagyshevka River makes about 10 000 specimens (mixed-aged young salmon).

During the last 12 years, in total more then 100 thousands of mixed-aged salmon specimens reared at the Neva and Narva hatcheries were released at the rapids of the river (Fig. 4 and 5).

Fig. 4 — The tagged smolts of Atlantic salmon before the releasing to the Gladyshevka River

Fig. 5 — The releasing of Atlantic salmon smolts to the Gladyshevka River

Natural salmon spawning is the evidence of the effectiveness of the activities: wild parrs were detected at the rapids of the Gladyshevka River since 2004. Investigations of parr densities (recruitment) have shown that stock have been very poor yet. At present the densities are on the low level — not more then 7 parrs/100 m^2 — mainly due poaching

and small spawning and nursery area in the River. Production of smolts of natural origin in the river Gladyshevka has not ever been assessed.

It is necessary to continue the practice of releasing young salmon from the donor population – which has already given positive results – for reestablishing natural salmon population in the Gladyshevka River. Research-based restoration releases are to be continues will annual sustainable salmon spawning recommences in the river.

Potential environmental capacity of spawning and nursery grounds of salmon can be increased by means of restoration of the areas (rapids) previously lost as a result of economic activities of humans. For renovating the sections of the river suitable for spawning and young salmon fattening it is necessary to develop a research-based action plan on changing the relief and structure of the bottom.

By our opinion, to conserve the wild populations and to increase their numbers in the Rivers of the Russian part of GF the National Russian Baltic Salmon Program must be prepared.

5.3.9. Collection of information, analysis and assessment of updating works pertaining to the Red List of species (HELCOM Red List of Species)

Species specific conservation programs and threatened species monitoring

Threatened species program in the Leningrad Region is coordinated by the Committee on Natural Resources of the Leningrad Region. Also specific research program, dealing with threatened species monitoring and protected areas exists in Komarov Botanical Institute (St. Petersburg). However any special program on marine macrophytes does not exist.

The National and Regional Red Lists of vascular plants and fungi exist, for example, Red Data Book of Nature of the Leningrad region. Vol. 2. Plants and fungi. 2000; Red Data Book of Russian Federation (Plants and Fungi), 2008, but only the last one has official legal status. Some marine macrophytes species are included in the lists. Red Data Book of Nature of the Leningrad region (2000) is still valid, but it is presently revised. Neither the assessments for the Red Lists of 2000 nor of 2008 are based on IUCN criteria. The assessment is based on the distribution situation and specific risk factors.

There is a general program of monitoring of threatened species of the Leningrad Region, coordinated by the Committee on Natural Resources of the Leningrad Region. In this program mainly Komarov Botanical Institute (BIN RAS, St. Petersburg) and St. Petersburg State University are involved. There is no special monitoring program of threatened Baltic macrophytes. But the program “Complex monitoring of the islands in the Russian part of the Gulf of Finland, included in the nature reserve “Ingermanlandsky” (under creation) exists during several last years and within this program the research of macrophytes has been done by specialists from Komarov Botanical Institute (St. Petersburg).

Collection of information for the HELCOM Red List of Species

Development of a Checklist of all macro species in the Baltic Sea was the first step of redlisting. The Checklist was published in 2012 in the Baltic Sea Environment Proceedings (No. 130). In the same manner, the Species Information Sheets that have been developed for each redlisted species or other assessment unit are integral to this Red List. They are also available on the HELCOM web site.

The HELCOM Red List project started with the preparation of the Baltic Sea checklist of macrospecies (HELCOM 2012). The checklist of Baltic Sea macrophytes was compiled according to three prerequisites: 1) the species should be taxonomically unambiguous and to be found in international taxonomic databases, 2) the species should be capable of growing permanently submerged (at least the lower part of the plant) in minimum salinity of 0.5 psu, and 3) the species should be found from the Baltic Sea itself, not just in nearby ponds, rivers or other related water-bodies. Following these criteria, in all 526 macrophyte species were included in the Baltic Sea checklist of macrophytes and this set of species was considered in the Red List assessment. Using the checklist of Baltic Sea macrophytes (HELCOM 2012) as a starting point, the first step in the Red List assessment work was to identify species that could be directly assigned to one of the following IUCN categories: Not Applicable (NA), Not Evaluated (NE) or Least Concern (LC).

The next important step was publication; " HELCOM Red List of Baltic Sea Species in danger of becoming extinct. (Helsinki Commisiion, 2013. Balt. Sea Environ. Proc. No. xxx). The HELCOM Red List of Baltic Sea Species in danger of becoming extinct is the result of four years of work with contributions from about 80 experts from all coastal countries of the Baltic Sea. From Russia the data about occurrence and distribution of macrophyte species have been provided by Elena Glazkova (aquatic vascular plant species and partly algae) and Nickolay Kovalchuk (algae). Also Russian experts actively participated in most of HELCOM group meeting for discussion and better preparation of material for HELCOM Red List of Species and Biotops.

In the current HELCOM Red List the following categories were evaluated for macrophyte species - Threatened, Near Threatened or Data Deficient. Altogether 17 macrophyte species were evaluated - *Rosenvingiella constricta, Chara horrida, Lamprothamium papulosum, Nitella hyalina, Nitellopsis obtusa, Helminthora divaricata, Alisma wahlenbergii, Crassula aquatica, Hippuris tetraphylla, Persicaria foliosa, Potamogeton friesii, Zostera noltii.* Seven macrophyte species were considered threatened in the current HELCOM Red List assessment. Three of them were assigned to the category Endangered (EN): one charophyte, *Lamprothamium papulosum,* and two vascular plants *Persicaria foliosa* and *Hippuris tetraphylla.* Four species were categorized as Vulnerable (VU), charophytes *Chara braunii* and *Nitella hyalina* and vascular plants *Alisma wahlenbergii* and *Zostera noltii*. Four species were assessed Near Threatened (NT): two charophytes *Chara horrida* and *Nitellopsis obtusa* and two vascular plants *Crassula aquatica* and *Potamogeton friesii*. Besides participation of Russian experts in preparation of HELCOM Red List of Macro-species and HELCOM Red List of Baltic Sea Species in danger of becoming extinct, also national experts have been required to evaluate and check the data for Spread Sheets for assessed macrophyte species. Spread sheet for *Crassula aquatica* was prepared by Elena Glazkova, and for other 4 species (*Persicaria foliosa, Hippuris tetraphylla, Alisma wahlenbergii, Potamogeton friesii*) the additional data for Russian sector of the Baltic Sea have been provided.

Red List of Baltic Breeding Birds.

Compiled by Vladimir Fedorov, St.Petersburg State University

The Russian part of this document includes information from the region of Saint-Petersburg (the city of Saint-Petersburg and Leningrad Oblast) and Kaliningrad Oblast. It has been prepared by the expert team on birds from St. Petersburg State University and Kaliningrad State University (now Immanuel Kant University of Russia). The project coordinator was Vladimir A. Fedorov (St. Petersburg State University).

Monitoring of breeding birds populations in Kaliningrad Oblast has been carried out by G.V. Grishanov and his students from Immanuel Kant University of Russia. He prepared all the materials on breeding birds of this region for the Red List. Information, analysis and assessment of breeding birds populations from the region of Saint-Petersburg were prepared by the expert group from St. Petersburg State University, namely V.A. Buzun, V.A. Fedorov, V.I. Golovan, I.V. Iljinsky, A.V. Kondratyev, S.P. Rezvyi, R.A. Sagitov and I.B. Savinich.

These two parts of Russian Federation are differed in terms of size, completeness of ornithological surveys in different parts of the region, avifauna structure etc. For

example, in Kaliningrad Oblast breeding populations of birds have been studied and monitored for a rather long time all over the area. On the contrary the territory of Leningrad Oblast is investigated non-uniformly. In resent years much attention was paid to the costal parts of the Gulf of Finland, including Baltic Sea Protected Areas. The eastern part of the region is still poorly investigated. Because of this and some other reasons the analyses here will be represented separately for the region of Saint-Petersburg and Kaliningrad Oblast.

In the HELCOM Red List assessment of breeding birds 57 species or subspecies were selected. The following criteria have been applied for the selection of species:

1. "True" marine or coastal bird species, i.e. species which breed exclusively at the coast or only exceptionally inland;

2. Species, which breed mainly at the coast, or reach higher densities, or form larger colonies at the coast compared to the inland;

3. Species, which are characteristic inhabitants of typical coastal habitats such as coastal bays, salt meadows, dunes, skerries.

The reference area for the assessment of breeding birds populations was the entire territory of the Baltic Sea riparian states or (for Russia) regions (the main problem for the assessment in Leningrad Oblast; see above). The arguments why the entire national (or, in case of Russia, regional) territories have been used for the assessment were:

1. Population monitoring data are usually available on a national or regional scale; in most cases it is difficult or even impossible to separate "coastal" from "inland" density of breeding birds.

2. Coastal and inland breeders are usually forming the same population, i.e. there is no (genetic) separation.

3. A distinction between "coastal" and "inland" breeders for most species would not change the results of the assessment (despite the fact that population trends may differ between coastal and inland areas).

The analysis and assessment have been carried out on several points: population size, year of assessment, short-term (10 years) and long-term (50 years) trend. The majority of selected species could be characterized as absolutely common and even numerous all over the Baltic region.

Some species or subspecies among 57 selected taxa do not breed in Russian coastal areas – 10 species (subspecies) are absent (as a breeding taxon) in the region of Saint-Petersburg and 22 species (subspecies) are absent in Kaliningrad Oblast.

In the list of selected species (subspecies) there were quite a lot of taxa which are under protection in Russian Federation. 21 species (subspecies) from the list are included in the Red Data Book of Nature of the Leningrad Region. These are: Slavonian Grebe *Podiceps auritus*, Barnacle Goose *Branta leucopsis*, Greyleg Goose *Anser anser*, Shelduck *Tadorna tadorna*, Gadwall *Anas strepera*, Eider *Somateria mollissima*, Smew *Mergus albellus*, Osprey *Pandion haliaetus*, White-tailed Eagle *Haliaeetus albicilla*, Oystercatcher *Haematopus ostralegus*, Ringed Plover *Charadrius hiaticula*, Southern Dunlin *Calidris alpina schinzii*, Terek Sandpiper *Xenus cinereus*, Ruff *Philomachus pugnax*, Black-tailed Godwit *Limosa limosa*, Lesser Black-backed Gull *Larus fuscus*

fuscus, Caspian Tern *Hydroprogne caspia*, Little Tern *Sternula albifrons*, Arctic Tern *Sterna paradisaea*, Razorbill *Alca torda* and Black Guillemot *Cepphus grille*. For the next edition of the Red Data Book of Nature of the Leningrad Region 5 of them (Barnacle Goose, Shelduck, Gadwall, Arctic Tern and Razorbill) are recommended to be excluded from the list of protected species in the region. 12 species from the list of selected taxa are included in the Red Data Book of Nature of the Kaliningrad Region: Shelduck *Tadorna tadorna*, Osprey *Pandion haliaetus*, White-tailed Eagle *Haliaeetus albicilla*, Avocet *Recurvirostra avosetta*, Oystercatcher *Haematopus ostralegus*, Ringed Plover *Charadrius hiaticula*, Southern Dunlin *Calidris alpina schinzii*, Ruff *Philomachus pugnax*, Black-tailed Godwit *Limosa limosa*, Redshank *Tringa totanus*, Little Gull *Larus minutus* and Little Tern *Sternula albifrons*. And 5 species are included in the Red Data Book of the Russian Federation: Osprey *Pandion haliaetus*, White-tailed Eagle *Haliaeetus albicilla*, Dunlin *Calidris alpina schinzii*, Caspian Tern *Hydroprogne caspia* and Little Tern *Sternula albifrons*.

The analyses and assessment of information showed that condition and status of some species are very differing among various states and regions of the Baltic. Some species being quite common in Russian areas become sporadic breeders in the other coastal regions and vice versa. That is why several species which need special protection in Russia were classified in category “Least Concern” and not included in HELCOM Red List. For example, 3 species from the Red Data Book of the Russian Federation (Osprey, White-tailed Eagle and Little Tern) are categorized as Least Concern. The situation with these 3 species in Russian part of the Baltic coast is to be briefly reviewed.

Osprey *Pandion haliaetus*. In Kaliningrad Oblast population size of this species is very low (3-6 pairs) with notable annual fluctuations. The category of the species status in the region can be classified as Critically Endangered. In the region of Saint-Petersburg (the city of Saint-Petersburg and Leningrad Oblast) the situation is quite different. After critical decline in 1960-70-s (10-15 pairs) the population size shows continual increase. Now the number of this species in the region can be estimated as 70-80 pairs. The Osprey became regular breeder even within administrative border of Saint-Petersburg. But the species is still influenced by some negative factors (illegal shooting, disturbance during the breeding season, lack of trees that are suitable for nesting). That is why the situation can change for negative at any moment, and the species needs special protection in both regions.

White-tailed Eagle *Haliaeetus albicilla*. The situation with this species is similar in Leningrad and Kaliningrad Oblast. In both regions we can see a positive trend in population size. But this increase of number is very slow, much slower than in nearest Baltic States. Negative factors influencing population of this species are also the same in two Russian Baltic regions. They are: alternations of breeding habitats, illegal shooting, disturbance during the breeding season, death in traps on big mammals (wolfs, foxes). The species undoubtedly needs special protection in both Baltic regions of Russia.

Little Tern *Sternula albifrons*. In Kaliningrad oblast this species shows very notable annual fluctuations of population size (it depends of water level in the beginning of breeding season). The population trend should be estimated as negative during last years. The main negative factor for the species is the usage of breeding habitats (sand beaches) for recreation infrastructure. As a result the species suffer from the disturbance and direct elimination of eggs and nestlings by knocking down of cars and walking

tourists, by domestic animals etc. In the region of Saint-Petersburg the population trend is slightly positive. But the species suffers from similar problems: lack of suitable breeding sites and disturbance during the breeding period. Of course, the Little Tern needs special protection in both regions.

Among the list of selected species or subspecies only 23 taxa were included in the HELCOM Red List (categories Regionally Extinct, Critically Endangered, Endangered, Near Threatened and Vulnerable), 9 of them inhabit (or inhabited not long ago) Kaliningrad oblast and twice more (18 species or subspecies) inhabit the region of Saint-Petersburg. All these taxa can be divided into two groups. For the first one Tufted Duck *Aythya Fuligula,* Lapwing *Vanellus vanellus*, Common Sandpiper *Actitus hypoleucos* and Northern Wheatear *Oenanthe oenanthe* should be entered. All these species present as breeding birds at the both Russian coastal regions. And all of them are quite common and even abundant both in Kaliningrad oblast and in the region of Saint-Petersburg. These species currently do not need any special protection in the Russian part of the Baltic, but their presence in the HELCOM Red List can indicate at least two points. First, the considerable part of these species breeding populations inhabits Russian Baltic regions at present. Second, in spite of the good and stabile conditions of these species now, they need special attention and monitoring of population. In case of negative trends of populations in future it would be necessary to assume the measures for protection of these species.

One species, the Redshank *Tringa totanus* has a medium position between two groups. In Kaliningrad oblast the Redshank is a rare and sporadically distributed species with noticeable negative trend during the last 10 years. The species is included in the Red Data Book of Nature of the Kaliningrad Region. A similar situation is in neighboring Baltic States. In the region of Saint-Petersburg (the most eastern region of Baltic) the Redshank is quite common. The population is characterized by considerable fluctuations; however, the 10-years trend seems to be positive. It means that this species needs special attention and constant monitoring of population in the region.

All the rest species should be entered for the second group. They can be characterized as rare breeding birds and really need special protection in the Russian Baltic Sea regions. All these species deserve to be reviewed separately.

Slavonian Grebe *Podiceps auritus*. Inhabits the region of Saint-Petersburg, the species breeds mainly on small inland pools and lakes, the coast of the Baltic sea is used rather rarely. Breeding birds more often can be found in the south-western part of Leningrad Region. The species is a regular breeder inside the administrative border of Saint-Petersburg. The short-term trend seems to be positive, but population size is comparatively low (200-600 pairs) with considerable annual fluctuations. The Slavonian Grebe is included in the Red Data Book of Nature of the Leningrad Region.

Greater Scaup *Aythya marila*. Inhabits the region of Saint-Petersburg, but only single breeding birds (1-5 breeding females per season) can be found on some islands of the eastern part of the Gulf of Finland.

Eider *Somateria mollissima*. Inhabits the region of Saint-Petersburg. The species recovered to the region during the 1970-90-s. However, the population is still small and is estimated at 200-250 breeding females on the islands of the eastern part of the Gulf of

Finland. The short-term trend seems to be positive. The species is entered for the Red Data Book of Nature of the Leningrad Region.

Velvet Scoter *Melanitta fusca*. Inhabits the region of Saint-Petersburg. The species can be found only on the islands of the eastern part of the Gulf of Finland. The population size is estimated at about 10 breeding females with a negative short-term trend.

Ringed Plover *Charadrius hiaticula*. Small breeding populations exist both in Kaliningrad oblast and the region of Saint-Petersburg. In both regions the Ringed Plover suffers from disturbance during the breeding season and destruction of breeding habitats (sand beaches) and their using for recreation, cottage building etc. The species is entered both for the Red Data Book of Nature of the Leningrad Region and the Red Data Book of Nature of the Kaliningrad Region.

Southern Dunlin *Calidris alpina schinzii*. In the past the Dunlin was a widespread and common bird in most parts of the Baltic. In Kaliningrad oblast the subspecies was known as a breeding bird until 2001. After that no further breeding is registered, and this subspecies is considered to be extinct in the region. In Leningrad oblast only several breeding pairs were found during last years. The destruction of suitable breeding habitats (grazed coastal meadows) is considered to be the main reason for the population decline. Because of the low grazing pressure and lack of haymaking on coastal meadows they grow over reeds, tallgrass and bushes. The Southern Dunlin is entered both for the Red Data Book of Nature of the Leningrad Region and the Red Data Book of Nature of the Kaliningrad Region.

Ruff *Philomachus pugnax*. In the region of Saint-Petersburg a population minimum has been observed in the 1980-s, but during the last 10 years the number of reproductive females is slowly increasing. However, there are considerable annual fluctuations. In the regions the species suffers from destruction of suitable habitats, grass burning in early spring, disturbance during the breeding period and illegal shooting. In Kaliningrad Oblast the species is a rare, probably not permanent breeder. The main reason of population decline in the region is the destruction of suitable breeding habitats. The Ruff is included both in the Red Data Book of Nature of the Leningrad Region and the Red Data Book of Nature of the Kaliningrad Region.

Black-tailed Godwit *Limosa limosa*. In the region of Saint-Petersburg the population is characterized by considerable fluctuations, however, the 10-years trend seems to be increasing. During the breeding season, the species can be found all over the region, but there are only few places with confirmed breeding records mainly along the southern shore of the Gulf of Finland and the southern and south-eastern shore of the Ladoga Lake. In the region the Black-tailed Godwit can suffer from illegal hunting and disturbance during the breeding season, but entirely the limiting factors are unknown. In Kaliningrad Oblast the species is very rare and sporadically spreading breeder. The main negative factors here are destruction and alternation of breeding habitats and disturbance during the breeding period. The species is entered both for the Red Data Book of Nature of the Leningrad Region and the Red Data Book of Nature of the Kaliningrad Region.

Terek Sandpiper *Xenus cinereus*. In the region of Saint-Petersburg the species is still a very rare and sporadically spreading breeding bird, but the general trend seems to

be increasing, despite considerable annual fluctuations. The Terek Sandpiper is entered for the Red Data Book of Nature of the Leningrad Region.

Ruddy Turnstone *Arenaria interpres*. Inhabits the region of Saint-Petersburg. In the territory of Leningrad region the species is a rare breeder, the breeding seems to take place not every year. The Ruddy Turnstone can be found in the region only on some islands of the eastern part of the Gulf of Finland. The short-term trend seems to be negative.

Lesser Black-backed Gull *Larus fuscus fuscus*. In the region of Saint-Petersburg like in neighboring Finland and Sweden, the nominate subspecies of the Lesser Black-backed Gull has demonstrated a strong long-term decline since the 1970-s. At present breeding colonies of this subspecies can be found only on the islands of the eastern part of the Gulf of Finland. The causes of such a dramatic decline are not entirely clear. Among the most important negative factors may be lack of suitable breeding sites, disturbance during the breeding period and competition with the Herring Gull *Larus argentatus*. The Lesser Black-backed Gull is entered for the Red Data Book of Nature of the Leningrad Region.

Caspian Tern *Hydroprogne caspia*. In the region of Saint-Petersburg the species can be found in the easternmost part of Gulf of Finland, 20-40 breeding pairs were registered in the Bolshoi Fiskar archipelago during 1995–2006, but in 2010 none was discovered despite a complete survey and mapping of seabird colonies across the Gulf. Another colony was found in 1992 on the Moshny Island, but this colony has not been visited again. Last years the Caspian Terns have been watched at different points of the Russian part of the Gulf of Finland; breeding on some of the islands is not unlikely. The species is included in the Red Data Book of Nature of the Leningrad Region.

Black Guillermot *Cepphus grille grille*. In the region of Saint-Petersburg the nominate subspecies of the Black Guillermot can be found only on the islands in the easternmost part of Gulf of Finland. The population size is estimated at present as 100-150 breeding pairs with annual fluctuations, but the short-term trend seems to be negative. Limiting factors are not entirely clear. Among them the disturbance on the breeding sites can be mentioned. The subspecies is included in the Red Data Book of Nature of the Leningrad Region.

All the species from this group need protection in the territories of Russian Baltic regions. Most of them are entered for the regional Red Books. The rest need special attention and constant monitoring and they are under control of specialists. No doubt that including all these species (the second group) into the HELCOM Red List will be additional and very important argument for their protection in the Baltic regions of Russia.

In the region of Saint-Petersburg most species including in HELCOM Red List can be seen in the Protected Areas. The role of the Baltic Sea coastal Protected Areas in conservation of bird species is very important. First of all it is necessary to mention as the most significant such reserves as “Beryozovyye Islands”, “Vyborgsky” and “Kurgalsky”.

Some HELCOM Red List species in the Russian part of the Baltic can be found only on the islands of the eastern part of the Gulf of Finland. That is why it is very important to create a protected area on these islands. The establishing of strict nature

reserve (zapovednik) “Ingermanlandsky” (it is under design now) would be very important action for nature conservation on the Baltic Sea.

5.3.10. Red list of Macrophytes in the Russian sector of the Baltic Sea area and its coastal zone of the Baltic Sea

Compiled by Elena Glazkova, Botanical Institute of Russian Academy of Sciences

Research and Data Management

Although marine macrophytes are not a main task in Russian marine research programs, many data on distribution, ecology and biology of macrophytes in the Russian sector of the Baltic Sea have been received during floristic research in the Eastern Gulf of Finland, carried out mainly by experts from Komarov Botanical Institute (BIN RAS, St. Petersburg) - Elena Glazkova (HELCOM Red List of Species Expert, Macrophytes Group) and Nickolay Kovalchuk (HELCOM Red List of Habitat/Biotopes Expert, Biotops Group).

The data about vascular plant species, including marine macrophytes, in the Russian sector of the Gulf of Finland have been collected by Elena Glazkova, who investigates the vascular plant flora of coastal areas and the islands in the Eastern Gulf of Finland, starting from 1992. For more than 20 years of field research the vascular plant flora (marine macrophytes including) of the islands and coastal zone in the Russian sector of the Baltic Sea (Vyborg Bay, Neva Bay, Gulf of Finland) have been studied and a great deal of information has been collected. The main results of the research have been published (a comprehensive list of publications have been sent to HELCOM in the process of work on the project). Recently, starting from 2009 complex monitoring research in the Eastern Gulf of Finland for the integrated study of habitats and species is carried out by the specialists from Komarov Botanical Institute (St. Petersburg) - Elena Glazkova and Nickolay Kovalchuk. The program “Complex monitoring of the islands in the Russian part of the Gulf of Finland, included in the nature reserve “Ingermanlandsky” (under creation) exists during several last years and operated by the organization “Biologists for Nature conservation” (former name – “Baltic Fund of Nature, St. Petersburg). Within this program a lot of new data about occurrence, distribution and population state of macrophytes have been received. Collected data have been used for the work on the Checklist of Baltic Sea Macro-species, published by Helsinki Commission in 2012 (Baltic Sea Environment Proceedings No. 130). In the HELCOM checklist, the Baltic Sea species have been divided into five groups: Macrophytes, Benthic invertebrates, Fish and lamprey species, Baltic breeding birds, and Marine mammals. Each group was assigned its own team of experts. The expert team of Baltic Sea macrophyte species consists of 13 experts, including 3 experts from Russia - Elena Glazkova, Anna Doronina and Nickolay Kovalchuk. The data for the Checklist of Baltic Sea Macro-species from Russia have been represented mainly by Elena Glazkova (aquatic water plants) and Nickolay Kovalchuk (macro-algae). The data sources include published and unpublished reports, personal communications, archives and field records sheets.

Analysis and Assessment

The checklist for Baltic Sea macrophyte species compiled within the HELCOM Red List project currently includes 531 taxa of macroalgae, aquatic vascular plants, charophytes and bryophytes. The checklist includes presence/absence data for the Baltic Sea sub-basins. For the Gulf of Finland 187 macrophyte species have been included into the checklist. Among them in the Russian sector of the Gulf of Finland 77 higher plants occur - 73 aquatic vascular plant species and 4 bryophytes. Below the checklist of these species is represented with Red List categories.

Chapter 6. Monitoring

The "Development of the water sector in the Russian Federation over 2012-2020" Federal Targeted Program provides for a significant expansion in the number of observational stations, for enhancement of instrumental potential of the Centers for Hydrometeorology and Environmental Monitoring in the Russian part of the Baltic Sea catchment area.

In 2012-2013, the Neva-Ladoga Basin Administration was carrying out the project called "Research and estimation of nutrient loads to the Baltic Sea resulting from the influx of nutrients from the territory of the Russian Federation."

The following work was carried out in the course of the project:

— Hydrological and hydro-chemical work including sampling for analytical analysis of the total phosphorous and total nitrogen content. The samples were collected from 17 unmonitored rivers of the The Leningrad Region that flow into the Gulf of Finland (north and south coasts) and are included in the HELCOM database.
— Hydrological and hydro-chemical work including sampling for analytical analysis of the total phosphorous and total nitrogen content. The samples were collected from 9 unmonitored transboundary rivers in the Kaliningrad region next to the Polish border.
— Analytical analysis of the total phosphorous and total nitrogen content in the collected samples of the river water.
— Computation of the annual nutrient load to the Gulf of Finland coming with water courses from unmonitored rivers.
— Mathematical model based computation of the annual nutrient load to the Gulf of Finland from diffuse sources located within unmonitored territories.
— Mathematical model based assessment of the nutrient load to the Gulf of Finland from uncontrolled territories.
— Computation of the annual nutrient load coming from the territory of Poland with the waters of the Kaliningrad region transboundary rivers located in the vicinity of the border with Poland.

The obtained results allow to estimate the proportion of the Gulf nutrient load contributed by each category of sources, as well as to estimate the proportion of nutrient load contributed by the waters of transboundary rivers flowing from the Polish territory.

Hydrological and hydrochemical monitoring with sampling for analytical analysis of the total phosphorous and total nitrogen content will be carried out in 2013-2014 as part of the BASE international project under its “Monitoring’ section. The monitoring will cover the following sites:

• the Neva River and its tributaries (the Neva River outlet from Lake Ladoga, in the mouth cross-sections of the Neva tributaries. Neva River, as well as the points on the border of St. Petersburg and the The Leningrad Region)

• 19 water courses in the Kaliningrad region (the Pregolya riva tributaries, the rivers flowing into the Vistula and Curonian Lagoons and into the Baltic Sea)

The obtained results will allow estimating the proportion of the nutrient load to the Neva River contributed by:

- Lake Ladoga;

- each tributary;

- the Leningrad Region;

- the territory of Saint – Petersburg.

The obtained results will allow estimating the most polluted tributaries of the Neva River and continuing further studies to identify the sources of excessive nutrient inputs to the water body.

As part of the work point sources of nutrient load discharging waste water directly into the water bodies will be studied; computations of the annual nutrient load from diffuse sources in the Neva basin will be carried out. The results obtained will enable to evaluate the proportion contributed by each category of sources.

Monitoring data acquired from the watercourses in the Kaliningrad region will make it possible to estimate the proportion of the annual nutrient load contributed by the Pregolya River coming from the tributaries of the river; the data will allow assessing the nutrient load associated with the Baltic Sea bays in the Kaliningrad region.

Overall, the results of this project will allow the Russian Federation to fill the gaps in the PLC database regarding the following:

• in terms of providing monitoring data on total forms of nitrogen and phosphorus from 17 unmonitored rivers flowing into the Gulf of Finland;

• in terms of proportion of nutrient load contributed by the water of the Neva River;

• in terms of monitoring data from Pregolya River regarding the total nitrogen and phosphorus (data are absent in the national monitoring program).

The obtained results allow to estimate the most important sources of nutrients, which is important regarding making managarial decisions; the results will allow to evaluate and distribute the required reduction of nutrients to achieve new goals on reduction of the nutrient load, which will be presented at the HELCOM Ministerial Meeting (October 2013, Copenhagen, Denmark)

Chapter 7. Environmental education and public awareness

7.1 International conferences and seminars

The most significant events that have taken place in recent years to enhance environmental awareness and education in the Northwest region of the Baltic Sea are given below.

January 26, 2011 St. Petersburg hosted the "Cooperation in the area of sustainability and water management as part of the" Northern Dimension" international conference initiated by the Business Council of the "Northern Dimension" Environmental Partnership, conducted by the Center for Excellence in the field of water resources in the North-West of Russia.

The center was established on the basis of a memorandum of cooperation between the State Unitary Enterprise "Vodokanal" and Technology Innovation Centre in the city of Lahti. The agreement was signed at the "Pure Water" International Forum in October, 2010. The new structure will serve the purpose of educational activities and the exchange of experience both in the field of innovations applied in the water sector and in the management and operation of water supply and waste disposal systems. The best practices of integrated use and protection of water resources, waste water treatment, and the application of technical standards in this area will be studied there.

The international conference was attended by: Jacqueline McGlade, the executive director of the European Environment Agency; Jaakko Henttonen, Executive Director of the "Northern Dimension" Environmental Partnership; representatives of the Finnish Ministry of Environment and the Ministry of Regional Development of the Russian Federation; F.V. Karmazinov, General Director of the State Unitary Enterprise "Vodokanal", and Marie Pantsar-Kallio, director of the Lahti Technology Innovation Center, as well as representatives of the executive authorities of Russia and St. Petersburg, financial institutions, foundations, and Nordic countries intergovernmental agencies, manufacturers of equipment for water purification, managers of water supply facilities from the North-West of Russia.

The discussions at the conference were dealing with the following issues: EU-Russia cooperation in the field of ecology, water policy of the Russian Federation, the actions needed to improve the status of the Baltic Sea, and others.

On 22-23 September, 2011, Kaliningrad hosted the VII "Cross-border cooperation: the Russian Federation, the European Union and Norway" International Conference, which was integrated with the Forum of partner-regions of the Kaliningrad region.

The main objective of the Conference was to create most favorable conditions for a meaningful dialogue on all issues affecting the regional development of the areas located on the both sides of the Russian-European borders.

Conference on "Cross-border cooperation: the Russian Federation, the European Union and Norway" is being held since 2005, and during this period it has gained the status of the leading event developing and strengthening cross-border and inter-regional cooperation in the European sector; it has become an important platform for meeting each

other and developing versatile contacts between the parties to cross-border cooperation, for the exchange of views on the most pressing issues on the agenda and developing recommendations.

The agenda of the Conference in 2011 was focused on the potential that allows adapting the policy of the Russian Federation and the European Union to the new conditions of cooperation in the Baltic Sea.

The Forum participants discussed a number of issues important for strengthening the regional cooperation, the exchanged experience in the sphere of joint projects implementation and plans for the implementation of projects under the European programs.

On September 22, as part of the Conference, another event took place – namely, a meeting of the Coordinating Council on cross-border and inter-regional cooperation under the Plenipotentiary Representative of the President of the Russian Federation in the North-West Federal District. Participants of the meeting discussed the implementation of the existing cross-border cooperation programs of the European Neighborhood and Partnership Instrument and the impact of the programs on the social and economic development of the Russian Federation entities of the relevant territories. Regions presented their views on the prospects for the development of the European Neighborhood and Partnership Instruments for the period after 2013.

On October 25, 2011, the CJSC "Agrocomplex" Oredezh" hosted the presentation of "Training and manufacturing facility for handling chicken manure into multi-purpose compost."

In the The Leningrad Region , along with the development of livestock and poultry production, the volume of waste generated by the sector is growing as well. Thus, the sector generates more than 3 million tons of dung and manure annually. As a rule, the waste is nor recycled, but is stored in the lagoons, which have long been overbrimmed.

Ltd. "BIOZEM" together with "AgroComplex" Oredezh "presented the audience, a "Training and production facility for processing chicken manure into organic fertilizer". Processing of chicken manure is based on "bio-fermentation" domestic technology awarded in 2001 the State Prize of the Russian Federation in the area of science and technology. As a result of chicken manure processing an effective organic fertilizer – compost of multi-purpose use, which can be used for production of biological soils, for bedding and feed additives for animals, as well as for direct introduction into the soil, was obtained. Experiments showed that when this compost is introduced into the soil, virtually all crops increase their yield by 30-40%.

On November 17-18, 2011, St. Petersburg hosted an "Ensuring compliance with environmental legislation for wastewater disposal in St. Petersburg and the The Leningrad Region " Conference.

The participants made a note of a number of pressing issues, including the most burning one: illegal discharge of waste water by companies and the lack of treatment required.

It was emphasized that the indicators of microbial contamination of the Neva River in 2011 accounted for 79.2% and did not allow recreational activities. Water only at three beaches of the 25 was suitable for swimming.

In addition, over the last 3 years the number of oil spills in the water area of the city has increased - in the ten months of 2011 105 oil spills were eliminated, the majority of which (70-80%) were accounted for by the discharges through outlets into the St. Petersburg water bodies. The participants mentioned the repeated discharges at different times in the Izhora, Slavyanka, Ohta rivers. Eight cases of discharges into the Neva were registered in 2011 in the area of Sverdlovsk embankment

The participants of the conference discussed the need for the development and implementation of computer-assistant system for monitoring and early warning of water bodies pollution. They stressed the need for the State Duma to approve the draft federal law "On the Water Supply and Sewerage Handling" and "On Amendments to Particular Legislative Acts of the Russian Federation in connection with the Adoption of the Federal Law "On Water Supply and Sewerage Handling" involving a number of provisions aimed at ensuring the protection of water bodies when wastewater is discharged into the water bodies through a centralized system of municipal sewage system.

The project is based on the application of the best available technologies, however, the conference participants mentioned that the introduction of new technologies is being hampered by lack of a relevant legislative framework and a considerable expenses needed for the implementation of the activities.

On March 21, 2012, St. Petersburg hosted the Conference on the development of cooperation in the macro-region: " Baltic Sea Region: from planning to concerted actions."

The meeting was attended by: Sergei Zimin, Deputy Plenipotentiary Representative of the President of the Russian Federation in the North-West Federal District; Alexander Viktorov, Deputy Minister of Regional Development of the Russian Federation; Valentina Pivnenko, the first deputy chairman of the State Duma of the Russian Federation for Regional Policy and the North and the Far East, the President of the Parliamentary Conference of the Baltic Sea; Dmitry Bukin, head of the Regional Cooperation Division at the Department of European Cooperation, Ministry of Foreign Affairs of the Russian Federation; Slava Khodko, chairman of the executive committee of the Association of Economic Cooperation of the North-West of the Russian Federation; Felix Karmazinov, CEO of "Vodokanal of St. Petersburg"; Leonid Korovin, chairman of HELCOM LAND, CEO of St. Petersburg "Ecology and Business" NGO, and others.

The European delegation was represented by: Gerhard Almer, Ambassador of the Foreign Minister of Germany, Head of the Executive Headquarters of the German Presidency at the Council of the Baltic Sea States; Joanna Cyril, a representative of the Directorate General for Regional Policy of the European Commission. The meeting was also attended by Ian Lundin, Head of the Secretariat of the Council of the Baltic Sea.

By 2012, the Baltic Sea Region started witnessing a unique situation: there has been developed and endorsed a strategy for social and economic development of the North-West Federal District until 2020; there was launched the process of the Strategy

and Action Plan for the EU in the Baltic Sea region updating, in particular the HELCOM Baltic Sea Action Plan is being implemented. The period of 2011-2014 is supposed to witness consecutive presidency of Germany, Russia and Finland in the Council of the Baltic Sea States. These events provide a great potential for questing efficient ways of cooperation for the sake of comprehensive development of the Baltic Sea.

In the course of the discussions, representatives of administrations of the entities located within the North-West Federal District of the Russian Federation had the opportunity to inform the representatives of the federal agencies responsible for Russia's presidency at the CBSS, about their vision regarding the Russian presidency in the Council.

During the meeting, the sides discussed issues of Russian-European cooperation in the Baltic Sea region with taking into account the above mentioned new developments.

The Russian party stressed that the main objective of strengthening co-operation is to enhance the quality of life of people living on both sides of the Russian-European borders including the preservation of the environment, improvement of the social and economic situation, the development of contacts between people.

On March 29, 2012, St. Petersburg hosted, as part of the III "Northern Dimension" Forum, a round table on "Ecology and Environment". It was sponsored by the "Northern Dimension" Business Council and the Association of European Businesses.

Traditionally, the main purpose of the Forum is establishing dialogue between the Russian and European companies, governmental officials and international organizations interested in the development of cooperation within the territories of the "Northern Dimension" initiative Member-States. This year, particular emphasis was laid not only on the implementation of specific projects in the North-Western Federal District of Russia, but also on such burning issues as human resources, transportation, and environmental technologies.

Working groups of the “Northern Dimension” Business Council held a meetings dealing with such topics as ecology and nature conservation, vocational education, transportation and logistics, medicine and pharmaceuticals, wood processing industry.

The main focus of the "Ecology and Nature Conservation" round table was the enhancement of cooperation in the sphere of environment and ecology in the “Northern Dimension” “coverage zone” (Northern EU countries, Norway, Iceland and Russia).

The participants of the "Ecology and Nature Conservation" round table also discussed the presentation of the International Center for Advanced Water Technologies (Dmitry Troshenkov, "Vodokanal of St. Petersburg", Mika Sulkinoya, Finnish Cleantech Cluster) and the presentation on the advanced technologies for treatment of sludge (Yucca Kurhinen, Outotec Plc) .

On 17 – 18 May, 2012, St. Petersburg hosted, in the Tauride Palace, the fifth Nevsky International Ecological Congress. The organizers of the event: the Federation

Council and the Inter-Parliamentary Assembly of the CIS Countries (CIS IPA). Official partner: the United Nations Industrial Development Organization (UNIDO).

The participants of the Congress discussed the development of international cooperation in the field of environmental safety and security, enhancement of the legislation on environmental protection, sustainable use of water resources and safe waste disposal, enhancement of ecological awareness of the population.

The congress was attended by the heads of legislative and executive bodies of the state power of the Russian Federation, the environmental services of the CIS and of the Council of Europe, prominent political and public figures, representatives of the academic and business communities, non-governmental organizations.

Among the speakers at the plenary meeting there were representatives of the ministries and agencies of the Russian Federation, international organizations, parliamentarians and experts.

In his report Mr. Yu. Trutnev, the Minister of Natural Resources and Environment, pointed out that the number of contaminated sites in Russia should decrease by at least 10% by the year 2020. According to him, in 2010-2012, there were restored 1800 meteorological observation station and 64 rockoon sounding stations. More than 3,000 stations of hydrological observations will be put into operation by the year 2020. According to the speaker, the modern online system of ecological monitoring has already been commissioned in Sochi, and the next area of similar upgrading will be Lake Baikal. Yuri Trutnev said that by 2020 the system will cover all the territory of the Russian Federation.

All the reports presented at the Plenary session were dealing with the development of pillars for sustainable ecological development of the society; the participants discussed the ways and means of harmonizing incentives for economic growth and requirements of environmental safety and security for the sake of improving the quality of life and the protection of human health, to the end of defining long-term goals associated with the implementation of the chosen priorities.

The plenary session was followed up by the "Round Tables":

- «Modernization on the basis of cost-effective use of resources: environmental priorities of economic development";
- «International legal framework for environmental safety and security in the system of sustainable development";
- «Ecology as a pattern of life";
- «Environmental Policy and the Civil Society";
- «The Role of education and science in the resolution of environmental issues";
- «Integrated water resources management: water consumption and water quality" ("Vodokanal of St. Petersburg");
- «Ecology and the health of population in the CIS Member States";
- «Ecology of culture and the aesthetics of the environment";
- «On the development of the system of specially protected natural areas of the Russian Federation for the period up to 2020";
- «Post-Olympic environmental heritage."

On September 17, 2012, the country club "Dacha" (The Leningrad Region , settlement Petrovskoye) held an "Ecology of Water Resources of the Neva-Ladoga Basin" conference on the problems of a common water system of the North-West Federal District.

Conference participants discussed current problems associated with water resources of the Neva-Ladoga Basin. They stressed that Onega and Ladoga lakes are the only sources of drinking water for the majority of the Northwest population. Today the catchment area of the Neva-Ladoga Basin is enjoying a high level of economic development. Although St. Petersburg enjoys permanent improvement of wastewater treatment quality, generally the problem of untreated wastewater (domestic, industrial, agricultural) dischargers within the county is a very topical one. Further deterioration of the North-West common water treatment system can result in a situation when the existing water treatment technologies will no longer be able to cope with the changes of the water quality.

Conference participants discussed the problems of construction and modernization of wastewater treatment plants in small towns and facilities located within the territory of the Neva-Ladoga Basin. Today, there are technical and technological solutions available that provide state-of- the-art wastewater treatment. One of the solutions was demonstrated for the participants of the conference during a tour round a modern local sewage treatment plant that applies biological rotors technology. The facility is located near Priozersks.

Another aspect was stressed – namely, the need for mainstreaming the preparation of the federal law on protection of Lake Ladoga, which is the largest source of drinking water in Europe and is of particular importance in maintaining the natural balance of the Baltic Sea large marine ecosystem.

On February 20, 2013, Directorate-General of the Russian Maritime Register of Shipping held the "Ecology and economy of shipping in the Baltic Sea: looking for a reasonable compromise" Conference.

The conference was organized within the framework of the Year of the Environment, on the eve of the 40th meeting of the Heads of Delegation of HELCOM and the 34th HELCOM meeting; it is organized under the initiative of the Department of State Policy in the sphere of Maritime and River Transportation of Russia, with the assistance of the Ministry of Transport and the Ministry of Natural Resources and Environment of the Russian Federation and was supported by the Association of Shipping Companies, the Union of Marine Insurers, the Russian Association of Marine and River Bunkers.

The organizers of the conference: Russian Maritime Register of Shipping and the "IAA" media group.

The conference participants discussed the following issues:

• Assessment of the current navigation situation in the Baltic Sea;

• The impact of the requirements of the Conventions on the Protection of the Marine Environment on the performance of the shipping companies;

• Challengers and Implications of the implementation of the requirements of the International Maritime Organization (IMO) on energy efficiency for the Russian ships;

• On-coming entry into force of the International Convention of 2004 for the Control and Management of Ships' Ballast Water and Sediments;

• Upcoming in 2015 restrictions on the sulfur content in marine fuel;

• Proposal to grant the Baltic Sea Area the status of the "Nitrogen oxide emission control areas» (NECA);

• «Analysis of the adequacy of the technical level of marine diesel engines regarding requirements of IMO Tier III»;

• Analysis of the volume and dynamics of sales of new diesel engines for ship propulsion systems, and evaluation of emissions of nitrogen oxides from ships.

The topics considered in the course of the conference were closely related to the activities of the HELCOM MARITIME group and the International Maritime Organization.

On 5-6 April 2013, St. Petersburg hosted the Conference of Heads of Governments of the Baltic Region on protection of the ecology of the Baltic Sea (Baltic Sea Forum).

Baltic Sea Forum was organized by the Government of the Russian Federation as part of the Year of Environmental protection in Russia and in connection with the Russia's presidency in the Council of the Baltic Sea States (CBSS) in 2012-2013.

The meeting brought together high-level representatives of international organizations including the UN, the OECD, the CBSS and HELCOM, the ambassadors of 10 countries, heads of relevant departments, as well as non-governmental and commercial structures.

On April 5, reports on the major and most important projects implemented were presented. Among them there were presentations on the following topics: the results of environmental monitoring of the "North Stream" project, Pilot Finance Initiative by KfW group and Vnesheconombank, and a unique experience of "Vodokanal of St. Petersburg" in the area of waste water treatment.

Post-meeting, the parties adopted a final document: Declaration the Conference of Heads of Governments of the Baltic Sea countries **on protection of the ecology of the Baltic Sea**, which stipulated political support for the expansion of environmental co-operation of the Baltic countries, further strengthening of public-private partnership in relation to the protection of the environment.

On April 6, there was held a Forum titled the «Public Private Partnership in the Baltic Sea Region". An actual result of the Forum was an agreement on the establishment of "St. Petersburg initiative."

Minister of Natural Resources and Environment of the Russian Federation, Sergey Donskoy, stressed that this initiative will enable businesses together with environmental and public organizations directly and more efficiently work for the sake of the Baltic Sea ecological status enhancement. The "St. Petersburg Initiative" is a unique format which

indicates a profound seriousness of the dialogue that took place between the participants of the Forum.

At the round table "The environmental component of the economy of the Baltic Sea, ecological innovations. The main aspects of the transition to LNG as bunker fuel in the Baltic Sea Region" it was shown that the transition to the LNG as bunkering fuel could significantly reduce the load on the environment and the ecosystem of the Baltic Sea. However, it is necessary to clearly define the mechanisms and conditions of this transition to ensure that both environmental and economic aspects are being taken into account.

Another burning issue discussed at the Forum was preservation of the biological diversity of the Baltic Sea. Participants of the issue-related roundtable emphasized that the effective and coordinated activities in the area is decisive for the well-being of the citizens of all the Baltic region countries.

The participants of the "Marine spatial planning as a tool for implementing integrated management of marine areas for the sake of sustainable resource management and conservation," stressed the importance of a coherent marine spatial planning in the Baltic region and commended the efforts of all sides to strengthen cooperation in this field. Once again the need for an ecosystem approach to the issues of marine spatial planning was highlighted as a topical challenge.

Among the various proposals voiced out in the course of the Forum it is necessary to make note of the following:

• The project of establishing a regional water area and the Baltic Sea catchment area monitoring center;

• Ideas regarding the potential for establishing an innovative center for the development of water partnership between Russia and the European Union;

• The establishment of the The Leningrad Region training and manufacturing center dealing with agricultural waste handling technologies;

• Promotion of environmental education.

On April 4, 2013 St. Petersburg hosted the IV "Northern Dimension" Forum that was held at the "Sokos Hotel Olympia" hotel. The main objective of the Forum is developing dialogue between Russian and European companies, as well as and representatives of government agencies and international non-governmental organizations interested in the development of cooperation within the territories of the Member- States of the initiative.

The Forum participants and guests this year focused on issues related to the enhancement of trade and economic cooperation and the transition from a predominantly commercial activities to investing in various sectors of national economies within the framework of the Northern Dimension, which has become an approved common policy of four equal partners: Russia, the EU, Iceland and Norway since 2006.

The central topics of the meetings and round tables were as follow: power and energy saving; ecology and nature conservation, vocational training, transport, logistics

and customs policy, medicine and pharmaceuticals, wood processing industry, creative industries.

Annually in March the Committee for Environmental Protection and Ecological Safety of Administration of Saint Petersburg holds "the St. Petersburg Ecological Week".

This initiative of the Government of Saint Petersburg is aimed at improvement of the image of the city as the ecological capital of Russia and creation of favorable conditions for exchanging experience between representatives of the international experts involved in the sector.

The St.Petersburg Ecological Week comprises major events dealing with ecological issues:

- the "Ecology of Big City" annual International Ecological Forum;
- the "Baltic Sea Day" International Ecological Forum;
- the international industrial exhibition and fair;
- various exhibitions.

The "Baltic Sea Day" annual International Ecological Forum has been held in Saint Petersburg for 13 years already and has become a generally recognized forum for discussion of the Baltic Sea environmental problems that involves representatives of authorities, scientific organizations and the public.

The events held within the framework of the Petersburg Ecological Week are of great interest for government authorities of various levels, representatives of environmental businesses, environmental experts of industrial enterprises, representatives of nongovernmental organizations and scientific and community.

The main task of the "Ecology of Big City" Forum is promotion and introduction of innovative environmental equipment and technologies in Russia that contribute to conservation of natural resources, promotion of ecological safety and improvement of the quality of life of the population in big cities.

In March 2013, St. Petersburg hosted "Baltic Week" Congress included in the calendar of events of Russia's Chairmanship in the Council of the Baltic Sea States, its aim being development of recommendations for all parties concerned with development of cooperation in the Baltic Sea region. Within the framework of the events proposals were presented regarding the joint action plan for the Strategy of social-economic development of the Northwest Federal District for the period until 2020 and the Strategy of **the European Union** for the Baltic Sea region.

The Congress comprised several individual meetings, conferences and round tables that were dealing with the promotion of cooperation between the Baltic Sea countries – namely there were such events like the VI Annual "TRILOGY" International Conference, the "Baltic Sea Region: Common Territory – Common Projects", the XIV International Economic Forum "Baltic Sea Day" round table, the I International Agro-industrial Conference of the Baltic Region.

On March 20 – 22, 2013, Saint Petersburg hosted the XIV "Baltic Sea Day" International Ecological Forum devoted to preparation for the forthcoming HELCOM Ministerial Session in Copenhagen.

The "Baltic Sea Day" International Ecological Forum has now become a significant international event.

For fourteen years now representatives of all HELCOM countries and other European countries have been annually coming to the banks of the Neva River in March to discuss the problems of the Baltic Sea region. There is no other platform that would allow discussing the burning issue on HELCOM and the Baltic Sea agenda with such an extensive involvement of the public, academic community, parliamentarians and governmental institutions. Representatives of nongovernmental organizations, scientists, politicians are able to be introduced to the opinions of all those directly working for the benefit of ecology and environment, here they listen to the opinion of one another rather than to that of official delegations. The forum participants are both exchanging opinions and looking for joint coordinated solutions. The forum provides the platform for an informal dialog that allows discussing problems that cannot often be resolved in the context of official delegations missions.

The Forum may be presented as public hearings where all the parties concerned can get complete information on the problems of the Baltic Sea and on all aspects of cooperation, where they have an opportunity to ask one another most topical questions and get answers to them.

The Forum participants were greeted by schoolchildren from the Children's Ecological Center of St. Petersburg Vodocanal (CEC). Their performance voiced out the main question: what can each of us do to improve the ecological status of the Baltic Sea, to make the water cleaner and to preserve the ecosystems?

In her report Monica Stankevich, HELCOM Executive Secretary, stressed that with eutrophication being the major ecological problem of the Baltic Sea, it is necessary to regularly update the information on eutrophication and consistently assess its status including for the purpose of the data presentation at the HELCOM Ministerial Session to be held in October this year. She said that the new objectives with regard to biogenic reduction would be based on new and improved data on pollution loads coming into the Sea both from land and the atmosphere. In accordance with the conclusions drawn by HELCOM in partnership with BALTEX (Baltic Sea Experiment) scientific climate change network there is also the need for guidelines on the adequacy of the available arrangements in the context of the climate change.

The following round tables were held as part of the Forum:

- "Sustainable development of agriculture and rural territories, including BASE project";
- "Towards sustainable development of fishing and aquaculture, including BASE, BALTFIMPA projects";
- "Reduction of pollution with hazardous substances and pharmaceuticals, including BASE project";

- "Cooperation in the Baltic Sea region aimed at reduction of pollution of the atmosphere by water transport through exchange of innovative experience. BSR Innoship project";
- "Russian-Finnish-Estonian trilateral cooperation on the Gulf of Finland – the Gulf of Finland Year 2014".

The Forum participants noted that a lot has been done so far, and the HELCOM contracting parties have their own good initiatives. They specifically noted the considerable progress made in providing the scientific basis for HELCOM activities.

The result of every "Baltic Sea Day" Forum is its resolutions then distributed to supreme authorities for making effective decisions aimed at improvement of the condition of the Baltic Sea environment.

On May 21- 23, 2013, the VI Neva International Ecological Congress was held in the Tavrichesky Palace, Saint Petersburg. The topic of the Congress was enunciated as "Ecological Culture: Basis for Solution of Ecological Problems".

The Neva Congress is the largest ecological forum within the territory of the Commonwealth of Independent States. The Congress is traditionally organized by the Interparliamentary Assembly of the CIS (IPA of the CIS) jointly with the Council of the Federation, its official partner being the United Nations Industrial Development Organization (UNIDO).

The Forum was attended by politicians and scientists, representatives of legislative and executive authorities, international organizations, business community, nongovernmental organizations, educational and research institutions, mass media.

Greeting the Congress participants Georgy Poltavchenko emphasized that today Saint Petersburg is the best forum for discussion of initiatives, experience sharing and presentation of new ideas in the sphere of ecology. He stressed that all branches of St. Petersburg economy comprise "an ecological component". The city actively participates in ecological projects, in the development of international cooperation in this sphere. Due to the "Clean Water for Saint Petersburg" target program for modernization of treatment facilities and sewers our city has met the requirements of the Helsinki Convention on the Baltic Sea protection. We now treat 98% of waste water and by 2018 we will treat almost one hundred percent of waste water – 99.9%. Besides, the decision has been made on stagewise conversion of public and municipal transport to natural-gas-based motor fuel, which will allow making the city air cleaner.

Participants of the round tables discussed the problems of bio-economy and biotechnologies, development of innovations in this sphere, legal and law-enforcement aspects of ecological insurance, disposal of industrial and household wastes, prospects of "green energy", water resources management.

On May 21-23, 2013, the International Agro-ecological Forum was held in Saint Petersburg. It was housed by the State North West Research Institute of Agricultural Engineering and Electrification of the Russian Academy of

Agricultural Sciences. The Forum was held within the framework of the Sixth Neva International Ecological Congress.

The objective of the Forum was to promote wide dissemination of advanced agro-ecological, agro-engineering and research solutions, experience and knowledge, extension of international cooperation and to promote contacts and exchange of opinions among scientists, researchers and producers of agricultural products in Russia, CIS and overseas countries.

The Forum participants discussed a wide range of issues, including:

- achievements of the agro-engineering science aimed at reduction of the negative impact of agricultural production on the environment;
- measures for efficient use of nutrients in agricultural production;
- tasks faced by experimentalists with regard to the current problems of agriculture and agro-ecology;
- ecological legislation and control.

The program of the Forum included plenary sessions, simultaneous workshops, a round table and a professional trip that introduced the participants to the methods of field studies and bio-fermentation of poultry wastes.

The simultaneously conducted workshops comprised a wide range of topics:

- Innovative resource-saving technologies and ecological safety of crops production;
- Innovative resource-saving technologies and ecological safety of livestock farming;
- Energy-efficient and information technologies enhancing the ecological safety of agricultural production;
- Field studies for sustainable development of rural territories.

On July 4, 2013, the Round Table "Ecological Approaches to Waste Water Treatment for Small Settlements and Individual Households" was held as part of the "Race for the Baltic" international information bike campaign at Vodocanal of St. Petersburg.

The purpose of the international bike campaign was to stress the graveness of the threat to the ecological health of the Baltic Sea. One of its major appeals is to reduce eutrophication, in particular, to reduce the quantity of agricultural effluents coming into the Baltic Sea.

The campaign was designed both to inform the society about the ecological situation and to call on politicians to take particular steps. For that purpose the events of the campaign have been held for three months in 9 countries. The international campaign calls on all Baltic Sea countries to make the necessary decisions on specific actions to reduce the load on the Baltic Sea at the HELCOM Ministerial Session in Copenhagen in October 2013.

When proceeding along the route the participants of the bike campaign were collecting signatures calling upon all countries to take initiatives, they kept inviting

companies, enterprises and other organizations to demonstrate how they can become part of decision-making process decisive for the Baltic Sea.

The “Ecological Approaches to Waste Water Treatment for Small Settlements and Individual Households” Round Table was organized by the “Clean Baltic” International Coalition, “Friends of the Baltic Sea” public organization and the environmental commission of the Russian Geographic Society under the auspices of Vodocanal of Saint Petersburg SUE.

The topic under discussion was solutions needed to cease discharging household waste water from small settlements not yet provided with treatment facilities into the Baltic Sea.

Within the framework of the round table L.K. Korovin made a report on “HELCOM Requirements for Reduction of the Biogenic Load with regard to the Sources Located in the Catchment Area of the Baltic Sea in the view of the Forthcoming HELCOM Ministerial Session in Copenhagen”. In his report he gave an easy-to-understand and compelling presentation of the Baltic Sea eutrophication problem explaining the requirements to reduce the biogenic load stipulated by the Baltic Sea Action Plan as well as the revised requirements for its reduction that are expected to be approved at the HELCOM Ministerial Session on October 5, 2013.

The participants of the round table expressed particular interested regarding the following information:

- the situation in Russia,
- information on the phosphorus and nitrogen loads;
- HELCOM Recommendation 28E/6 “On-Site Wastewater Treatment of Single-Family Homes, Small Businesses and Settlements up to 300 Person Equivalent”;
- on the international project “Implementation of the HELCOM Baltic Sea Action Plan (BASE)”, one of its major components being the Baltic Sea eutrophication.

The participants of the round table decided to continue working in colloboration with the Commission for Ecology of the Legislative Assembly to work out particular proposals for reduction of household water discharge from country houses and horticultural cooperatives.

7.2. Voluntary movements

Musora.Bolshe.Net ('Litter. Any more.No') ecological movement

A so-called Positive-Creative Ecological Movement "Musora.Bolshe.Net" (MBN) has been acting in Saint Petersburg and The Leningrad Region since 2004. It includes a network of initiative groups.

The MBN is a social voluntary movement not committed neither by politics, nor by business or religion.

Principle of formation: several autonomous initiative groups for a network with common principles, technologies and trust between the groups.

The public actions conducted by the MBN:

- volunteer cleanups;
- collection of hazardous wastes and recyclable materials;
- tree-planting in the city to make it easier for us to breathe;
- forest planting (the activity started in 2009)

Enhancement of Environmental awareness:

- conducting awareness-building and information events for young people and adults;
- ecological seminars for children;
- master classes in waste sorting.

Mission of the MBN: formation of zero waste culture in Russia for the benefit of environmental protection against pollution with hazardous wastes, conservation of nonrenewable resources and restoration of the beauty of nature through:

- rethinking of everyday habits and production processes;
- redesigning goods and services with a zero waste lifecycle;
- reduction of overconsumption,
- reuse and joint use of goods and resources;
- waste recycling.

The MBN has the Ecomobil: a mobile collection point of recyclable materials. It arrives and picks up separately collected recoverable resources for money at the prices typical of stationary collection points.

It accepts aluminum cans, glass of any kind, bottles, PET bottles, paper and cardboard.

“Battery collection” campaign, 19 March, 2011, in Saint Petersburg

On Saturday, **March 19, 2011** from 2 p.m. till 6 p.m. the MBN conducted the “Battery collection” campaign in Aleksandrovsky park.

The MBN activists conduct regular selective litter collection in the The Leningrad Region . The collected recyclable materials are taken for recycling, batteries and accumulator units are taken to a specialized landfill for hazardous waste disposal.

Social movement “Batteries: second life of a friend”

The participants of the social movement “Batteries: second life of a friend” VOLUNTARILY commit to collect batteries from any person who will request them to do this.

The participants of the “Batteries: second life of a friend” social movement conduct video conferences on “How can Russia solve the problem of household waste?” (using batteries as an example)..

Objectives of the conference: to find particular SOLUTIONS on organization of portable batteries collection and their recycling in Russia, including enhancement of awareness and education of the population.

The conferences are designed to involve more participants into the public discussion and to develop particular solutions for organization of the system of hazardous waste collection and recycling in Russia as well as implementation of the principles of producers’ responsibility in the sphere of hazardous household waste collection and disposal.

Conference “What should we do with batteries in Russia?”.

On September 7, 2011, Saint Petersburg hosted the conference “What should we do with batteries in Russia?” The conference brought together politicians, lawyers, businessmen, ecologists, battery producers, volunteers from various organizations with a view to developing a common vision of the situation and working out recommendations for various spheres – policy, business, citizens – that will help to make the first step towards solution of the problem.

The moderator of the conference was ***the Department of the Federal Service for Supervision of Use of Natural Resources in the Northwest Federal District (Rosprirodnadzor).***

“PRO Waste” Coalition.

“PRO Waste” Coalition is a nonprofit voluntary all-Russia association of nongovernmental organizations, economic entities and other formats of associations of people established for solution of the problem of waste.

Lines of activity:

— awareness-raising activity in the sphere of waste management, implementation of noncommercial projects with a view to informing the population about the problem of waste and getting them involved into relevant activities, development of information materials on these issues;

— commercial services of introduction of separate waste collection within various territories, development of corporate ecological programs, organization of ecological holidays and trainings.

Annual project of the "PRO Waste" Coalition: "Prosvet" Camp

The project is designed to develop volunteer movement in Russia and fostering the mentality that would encourage the Russian citizens to render their gratuitous help in the area of environmental protection, this mentality should become an integral part of our culture and standard of conduct.

In 2012, the "PRO Waste" Coalition organized a |"Prosvet-2012" youth awareness-raising camp in the The Leningrad Region on the cost of the Gulf of Finland in the Zheltaya Bay (Primorskoye ME).

82 people took part in the work of the camp. Over 8 days they gathered 963 bags of litter. 35% of the litter was sent for recycling.

In 2013, the "Prosvet-2013" Camp was organized in the The Leningrad Region on the shore of Toksovo lakes under the auspices of the Committee for Civil Initiatives at the Kudrin Fund.

For 10 days the volunteers from Moscow, Saint Petersburg, Tver, Kazan, Minsk, France and Finland were cleaning the shore of Toksovo lakes removing unauthorized dumps and applying the principle of separate waste collection: glass, metal and plastic are to be taken for recycling in Saint Petersburg. 1,535 bags of litter were collected.