

**On the State of Conservation of the UNESCO World Heritage Property  
*Lake Baikal (Russian Federation, No. 754) in 2014***

**1. Response of the Russian Federation with regard to Resolution No. 37 COM 7B.22 adopted by the World Heritage Committee.**

*Concerning the activities of Baikalsk Paper and Pulp Mill*

Resolution of the RF Government related to the termination of recurring operations at Baikalsk Paper and Pulp Mill (hereinafter referred to as “BPPM”) is mainly caused by the intention to eliminate the negative impact of environmentally unsound production to a unique ecosystem of Lake Baikal and necessity of the Russian Federation to perform its obligations related to Lake Baikal conservation as UNESCO World Heritage property.

Issues related to legislative and regulatory support are reflected in the Federal Law “On the Protection of Lake Baikal” and Resolution of the RF Government No. 643 “On Approval of the List of Activities Prohibited in the Central Ecological Zone of Lake Baikal Natural Area” (hereinafter referred to as “Resolution No. 643”, “List”) as of August 30, 2001 adopted according to the law specified prohibitions and restrictions of business activities to be taken into account when developing the plan for economy modernization of Baikalsk one-factory town.

The RF Ministry of Natural Resources and Environment has made arrangements to evaluate the possibility to exclude separate business activities from the List and subsequent to the results of this work the Government of the Russian Federation adopted its Resolution No. 159 as of February 28, 2014 “On Introducing Changes in the List of Activities Prohibited in the Central Ecological Zone of Lake Baikal Natural Area”. The Resolution removed restrictions for the performance of such activities as bottling drinking water from Lake Baikal, processing wild plants, vegetable, fruit and berry products obtained from personal small holdings and farms, manufacturing phytopharmaceuticals.

On June 28, 2014, Federal Law No. 181-FZ “On Introducing Changes in Certain Legal Acts of the Russian Federation” (related to the issue of Lake Baikal Natural Area) as of June 28, 2014 was adopted and it amended the Water Code and Urban Planning Code of the Russian Federation, as well as Federal laws “On Protection of Lake Baikal”, “On Environmental Due Diligence”, “On Fishing and Conservation of Aquatic Biological Resources”.

Within Lake Baikal Natural Area, this Federal law has:

Completely restored the institute of Environmental Impact Assessment with respect to design documents for construction projects as a binding measure to protect a unique ecosystem of Lake Baikal;

Imposed a ban for disposal of industrial and consumer wastes of I—III hazard classes in the Central Ecological Zone of Lake Baikal Natural Area;

Authorized reclassification of designated forest lands within the boundaries of Central Ecological Zone of Lake Baikal Natural Area to the lands of specially protected areas and properties when specially protected natural areas are created.

The mentioned changes introduced in the legislation must be taken into account when developing the plan for economy modernization of Baikalsk one-factory town.

As part of the Federal Target Program “Protection of Lake Baikal and Socio-Economic Development of Lake Baikal Natural Area in 2012—2020” approved by Resolution No. 847 of the RF Government on August 21, 2012, allocation of funds from the federal budget in the amount of RUB 3,010.0 mln is expected for implementation of program-related activities with regard to disposal and elimination of waste accumulated during BPPM operation.

In 2013, the RF Ministry of Natural Resources and Environment signed a public contract with VEB Engineering LLC for the performance of an engineering survey and development of design documents to implement the activities aimed at eliminating the negative impact caused by waste accumulated due to BPPM operation, with the contract’s cost being RUB 131 mln.

Power engineering, water supply and waste water disposal (sewage) communal facilities, including the ones of Baikalsk, have considerable negative impact on Lake Baikal. Heat supply

systems of Baikalsk are in critical condition and need reconstruction.

As part of the Federal Target Program “Protection of Lake Baikal and Socio-Economic Development of Lake Baikal Natural Area in 2012—2020”, the Government of the Irkutsk Region is planning to implement 3 projects on the territory of Baikalsk in 2014—2016: discharge header for wastewater treatment facilities in Baikalsk and Irkutsk Region; 2 sewerage pumping stations in Baikalsk.

According to the Order issued by the Government of the Russian Federation on January 28, 2013 and minutes of the meeting held at the office of RF Deputy Prime Minister on March 22, 2013, the Ministry of Natural Resources and Environment has developed a draft concept for the construction of museum & exhibition, informational, educational and tourist complex (hereinafter referred to as the “Theme park”) in Baikalsk on the territory of BPPM’s industrial site. It is believed that the Theme park will perform the functions as follows:

Promote the development of ecotourism including demonstration of museum pieces, exhibit displays and other objects of interest related to the issues of biological and landscape diversity conservation in Russia, and also protection of Lake Baikal in the open air;

Render services related to reception and support (including informational one) of tourists and visitors;

Encourage training and skill improvement of experts working in the field of nature conservation, sustainable use of environmental resources, tourism and recreation;

Serve as a location to hold interdepartmental meetings, workshops and other forums on the regional, national or global level focused on environmental issues, natural resources management and tourism development.

The Theme park shall be a complex of architectural and engineering structures complying with all up-to-date requirements and including museum and exhibition pavilions, travel service facilities, the ones for informational, cultural and utility servicing, classrooms, conference halls, equipped sites to hold public events related to environmental issues, administrative, commercial and transport infrastructure assets.

The RF Ministry of Natural Resources and Environment believes that development of such a complex will greatly contribute to information support and strengthening ecotourism appeal in Russia, creating a positive image of Russian national policy related to the conservation of natural and cultural heritage and also facilitate integration of Baikalsk in social and economic development of the region. In general, creation of the Theme park will breathe a new life into Baikalsk, having turned it into a fast-growing town with a stable diversified economy — center of ecotourism development, main tourist hub of Lake Baikal, consolidation point for tourist flows in the Baikal Region that are isolated nowadays.

Together with the Theme park creation, the developed concept offers to construct, on the territories adjacent to BPPM, a hotel and restaurant cluster that will render services to park visitors.

The aggregate number of personnel working at BPPM Public Limited Company (OAO) as of January 19, 2015 was 68 employees, 1,433 employees were dismissed, 786 of them — “subject to agreement between the parties”; 574 — “due to the reduction of staff”; 41 — “on their own free will”; 4 — “due to retirement from service”; 28 employees left the office for other reasons. There is no outstanding balance in salaries payable.

The number of unemployed persons in Slyudyansky District as of January 19, 2015 was 417 people, unemployment rate — 2.8%; in Baikalsk — 272 citizens, with the unemployment rate being 3.6%.

868 persons (60% of the total number of dismissed employees) have applied to the employment center, a regional state public institution, in Slyudyansky District; 707 people have been acknowledged unemployed, 237 of them have got a job, 81 — forwarded to perform public works, 71 — forwarded to complete vocational training programs, with specializations being as follows: bulldozer operator, excavator operator, loader operator, cook, house painter, installation fitter, etc.

According to the information provided by the bankruptcy manager of BPPM Public

Limited Company (OAO), at present, a complete inventory of the company's assets has been terminated, asset sales procedure has been developed and approved at the creditors' meeting and assets have been partially evaluated. The activities related to the development of bankrupt's estate, registration of title to fixed assets and evaluation of the property owned by BPPM Public Limited Company (OAO) are in progress.

Subsequent to the results of public bidding, the portfolio of cogeneration plant's assets owned by BPPM has been transferred in municipal ownership. To support the operations of the mentioned cogeneration plant, a unified heating supply company Teplosnabzhenie LLC (OOO) has been established in Baikalsk. 247 people released from employment at the cogeneration plant related to BPPM Public Limited Company (OAO) have already been recruited by the mentioned company. The heating season of 2014—2015 started in September 2014. As a result of routine maintenance implemented at the cogeneration plant, the town is supplied with heat as expected.

*Concerning the planned construction of HPP on the Orkhon River in Mongolia*

The information was provided by the Mongolian party.

*Concerning the mining of ore at the Kholodninskoye Deposit*

It was planned to design and implement a comprehensive project aimed at preventing the negative impact caused by adit and mine waters of the Kholodninskoye Deposit located in the Republic of Buryatia within the framework of the Federal Target Program "Protection of Lake Baikal and Socio-Economic Development of Lake Baikal Natural Area in 2012—2020" (hereinafter referred to as the "Program").

Using the funds of the republican budget, the Ministry of Natural Resources for the Republic of Buryatia has developed design documents to prevent the negative impact caused by adit and mine waters of the Kholodninskoye Deposit located in the Republic of Buryatia.

The activity aimed at "Preventing the Negative Impact Caused by Adit and Mine Waters of the Kholodninskoye Deposit Located in the Republic of Buryatia which Were Formed as a Result of a Detailed Geological Survey and Ore Extraction in the 70's and 80's" was excluded from the Program based on Resolution No. 1535 "On Introducing Changes in the Federal Target Program "Protection of Lake Baikal and Socio-Economic Development of Lake Baikal Natural Area in 2012—2020" adopted by the RF Government on December 26, 2014.

The decision was underpinned by the availability of a valid license for the right to mine intended for the extraction of polymetallic ores at the Kholodninskoye Deposit as per License UDE 13040 TE effective till March 10, 2025 granted to InvestEuroCompany.

According to Decree No. 1382 issued by the Federal Agency for Subsoil Use on December 21, 2012, the right to mine granted to InvestEuroCompany LLC (OOO) as per License UDE 13040 TE for using subsurface resources to extract polymetallic ores at the Kholodninskoye Deposit was suspended till December 31, 2014.

Pursuant to Letter No. 02-12-29/23525 issued by the Ministry of Natural Resources and Environment of the Russian Federation, in case of early termination with respect to the validity of the license and subsoil plot being transferred to the unallocated subsoil reserve fund, the Ministry of Natural Resources and Environment of the Russian Federation is ready to consider the possibility of including the mentioned activity in the Program and its implementing with the help of federal funds and co-financing being provided by the Republic of Buryatia.

As of January 15, 2015, there is no relevant information regarding any suspension of the right to mine granted to InvestEuroCompany LLC (OOO).

*Concerning mineral exploration on the territory of the Central Ecological Zone*

To implement the activity "Design and Delivery of a Comprehensive Project Aimed at Preventing the Negative Impact caused by Adit and Mine Waters of the Kholodninskoye Deposit Located in the Republic of Buryatia which Were Formed as a Result of a Detailed Geological

Survey and Ore Extraction in the 70's and 80's" being part of the Federal Target Program "Protection of Lake Baikal and Socio-Economic Development of Lake Baikal Natural Area in 2012–2020" the Government of the Republic of Buryatia has allocated RUB 17,412.5 thous. from the republican budget to develop design documents to implement the activity.

Key options specified in design documents:

When selecting a design solution to prevent the negative impact of sewage waters, two options have been refined and validated, namely:

Option 1. Adit liquidation with the help of concrete bulkheads and filling mined-out space with rock to restore natural hydrogeological and geochemical conditions and prevent impure adit waters from their discharge to the surface of the water catchment area.

Option 2. Construction of treatment facilities for adit waters and supporting their operation (including power supply and vehicle access). The activities related to the delivery of necessary machinery to perform the works at the site are specified in design documents. Environmental components forecast has been performed for the territory under review as a result of design documents implementation and proposals related to environmental monitoring have been developed. Design documents make provisions for the technical reclamation of disturbed soils including elimination of the negative impact on the environment caused by rock dumps and also biological reclamation to prevent anti-erosion processes in case of impact on the environment and restoration of lands, flora renewal on the disturbed soils.

#### *Concerning the Baikal Harbour and Gate of Baikal Special Economic Zones (SEZ)*

When making arrangements for tourism and recreation special economic zones, we complied with the requirements of the applicable environmental legislation. Environmental impact assessment (EIA) was performed to determine the consequences of planned business activities and prevent (by the development of dedicated activities) possible environment deterioration under the influence of the project.

EIA procedures were developed according to the requirements of environmental legislation, regulatory instruments approved by the Ministry of Natural Resources and Environment of the Russian Federation, Federal Forestry Agency and Ministry of Construction, Housing and Utilities (Minstroy) of the Russian Federation governing environmental-related activities.

The materials of the section "Assessment with regard to the Ecological Condition of the Territory and SEZ Environmental Impact Assessment" developed according to the established procedure have received positive opinion No. 151-e of the State Environmental Expert Review as of August 29, 2006.

The panel of experts emphasized the appropriateness of the decision taken with regard to creating a tourism and recreation special economic zone Baikal Harbour in the Baikal Region of the Republic of Buryatia, which has a high potential of recreation resources and prospects for tourism development.

Following the examination of materials, the panel of experts believes that impact on the environment specified in the documents is permissible.

The materials served as basis for detailed design development. Necessary activities to eliminate the negative impact on the environment have been performed on the whole territory of SEZ, namely:

Development of design specifications and estimates, EIA for the facilities under construction;

Development of norms regulating permissible impact on the environment;

Eco-zoning of the territory;

Development of rules for tourism and recreation organization;

Development of techniques to calculate ecological capacity (to be adjusted with regard to all seasons);

ISO-14000 system has been implemented providing the opportunity of shaping

environmental policies and program at the facilities;

Service for environmental components' status monitoring has been launched which implies project supervision and control (including the one from the government), for example, over the compliance with conditions of natural resources management and fulfillment of planned activities aimed to reduce impacts;

2 gas-burning boiler houses using imported fuel (liquefied gas propane + butane) have been constructed;

Local waste treatment facilities in the form of filtration fields have been constructed at Turka site (2<sup>nd</sup> extension), being intended to develop all necessary infrastructure for resident's projects implementation on the territory of Baikal Harbour SEZ;

Waste transshipment facility has been constructed at the site;

Water supply, sewerage and direct runoff drainage network has been laid including pump stations working in the auto mode;

Alternative sources of heat and energy are used, solar arrays generate heat to be used for water heating; there are wind-driven power plants producing electricity, heat pumps using the heat from the ground and residual heat of treated effluents are applied;

During the warm season, waste is collected along the coastline at the sites of the Baikal Harbour SEZ on a monthly basis.

It should be noted that construction of facilities within this special economic zone will contribute to a significant reduction in the recreational load from nature travels on Lake Baikal coast.

Environmental restrictions existing on the territory result in the use of the most eco-friendly and sustainable technologies during the development and construction of facilities within planned Baikal Harbour SEZ. The proposed tourism and recreation special economic zone will contribute to steady development of the region to ensure conservation of unique ecosystem of Lake Baikal to the maximum extent possible.

According to the development strategy for the *Gate of Baikal* tourism and recreation special economic zone (hereinafter referred to as "SEZ"), the main objective for the creation of a SEZ is as follows: to develop a modern tourism and recreational complex on the territory of the Irkutsk Region focused on organized outdoor adventures, eco- and water tourism.

Phase I of the SEZ project is implemented at the site of Mountain Sobolinaya located in Slyudyansky District, Irkutsk Region. The total area of the territory is 756.97 ha. At present, four residents are registered on the territory, namely: Mountain Sobolinaya Baikal Ski Resort LLC (OOO) — project aimed at creating a tourist center Mountain Sobolinaya; Ilim Baikal LLC (OOO) — construction of a country house hotel and its facilities; Baikal Akva LLC (OOO) — hotel services, children's recreation camp, restaurant, bath house, SPA; Grinvald Baikal LLC (OOO) — construction of a low storey park hotel.

Six more potential residents have also expressed their intentions to perform tourism and recreation activities in the SEZ with the projects for the construction of wellness centers and hotel complexes.

The activities performed by the residents comply with Resolution of the RF Government No. 643 "On Approval of the List of Activities Prohibited in the Central Ecological Zone of Lake Baikal Natural Area" as of August 30, 2001 and do not constitute a threat for the environment of the territory and Lake Baikal.

At present, the Government of the Irkutsk Region in cooperation with SEZ Public Limited Company (OAO) are updating the list for the development of SEZ infrastructure facilities, in particular, due to the entry into effect of provisions specified in Federal Law No. 181-FZ "On Introducing Changes in Certain Legal Acts of the Russian Federation" as of June 28, 2014, with regard to reallocation of resources to undergo a mandatory environmental due diligence and reconsidering the conditions of agreements with SEZ residents related to the terms of infrastructure development.

*On introducing changes in Federal Law No. 94-FZ*

In fact, for several years the Government of the Republic of Buryatia has been addressing the issue related to introducing changes in Federal Law No. 94-FZ “On Protection of Lake Baikal” as of May 01, 1999 specifically pertaining to the improvement of a mechanism controlling land relations in the central ecological zone of Lake Baikal natural area.

Addressing the issue of the necessity to introduce these changes is determined by the order given by V. V. Putin, Chairman of the Government of the Russian Federation, during his visit to Irkutsk in August 2009 according to which the Ministry of Natural Resources and Environment of the Russian Federation was assigned to terminate drafting and submit the federal bill on introducing changes to the Federal Law “On Protection of Lake Baikal” specifically pertaining to setting the requirements for the use of land resources, forest exploitation, protection and regeneration and organization of tourism in the central ecological zone of Lake Baikal to the Government of the Russian Federation by December 01, 2009.

Later on, following the results of the meeting carried out on March 28, 2012, President of the Russian Federation D. A. Medvedev gave an order to the Government of the Russian Federation related to the improvement of RF legislation specifically pertaining to the removal of restrictions with regard to the development of infrastructure necessary for the operation of the Baikal Harbour tourism and recreation special economic zone in the central ecological zone of Lake Baikal natural area and also for the survival of population living in that region.

Federal Law No. 181-FZ “On Introducing Changes in Certain Legal Acts of the Russian Federation” adopted as of June 28, 2014 did not solve the assigned task, proposals made by the Government of the Republic of Buryatia were not taken into account.

Clear-felling operations and reclassification of designated forest lands occupied by protective forests to the lands of other categories are prohibited in the central ecological zone of Lake Baikal natural area according to Article 11 of Federal Law No. 94-FZ “On Protection of Lake Baikal” as of May 01, 1999 unless such lands are reclassified to the ones of specially protected areas and properties when specially protected natural areas are created.

The proposed amendments are aimed at the development of critical infrastructure for the population living in that region and at provision of environmental safety. Utility infrastructure facilities available in the coastal area fail to comply with ecological requirements of environmental laws and technical specifications.

It should be noted that according to Resolution of the RF Government No. 643 “On Approval of the List of Activities Prohibited in the Central Ecological Zone of Lake Baikal Natural Area” as of August 30, 2001 it is prohibited to erect buildings and structures (or their parts) which operation is not related to the creation and development of specially protected areas of federal significance and tourism & recreation special economic zones, life support and environmental control systems of existing industrial, residential and recreation facilities, and also to erect structures on unimpaired natural areas, including designated forest lands, water protection areas and protected shoreline belts of Lake Baikal and rivers flowing into it.

In four regions of the Republic of Buryatia adjacent to Lake Baikal, there are 26 municipal units which include 71 localities. The population residing in the area amounted to 78.7 thousand people as of January 01, 2014.

The Federal Target Program “Protection of Lake Baikal and Socio-Economic Development of Lake Baikal Natural Area in 2012—2020” contains the activities aimed at Lake Baikal protection, including the ones related to the construction and upgrade of waste treatment facilities, sewage disposal plants, discharge networks. All these measures are intended, first of all, to protect a unique Lake Baikal natural area.

Adopting these amendments will contribute to environmental improvement and conservation of the World Heritage property Lake Baikal and Baikal natural area, in general.

*Concerning management plans for SPAs, being part of the property*

Within the framework of the Federal Target Program “Protection of Lake Baikal ...” and development of the management plan for the whole territory of the World Heritage property in 2013–2014, Baikal Institute of Nature Management, Siberian Branch of the Russian Academy of Sciences together with FSBI Zapovednoe Podlemorie and FSBI Baikal State Nature Biosphere Reserve have developed (based on model territories, i.e. Baikal Reserve, Zabaikalsky National Park and Kabansky Wildlife Sanctuary) *a draft program aimed at biodiversity monitoring for all federal SPAs of Lake Baikal natural areas.*

Management plans for specially protected areas of regional significance have been approved by the Government of the Republic of Buryatia and regulatory legal acts.

The program “Environment Protection and Efficient Use of Natural Resources” run by the Government of the Republic of Buryatia has approved the activities aimed at conservation of biodiversity and development of specially protected areas of regional significance with the relevant allocation of funds and performance indicators. The program will be effective from 2013 through 2020.

Also, according to Resolution No. 407 adopted by the Government of the Republic of Buryatia on July 26, 2013, 2 activities were performed in 2014:

“Conservation of Natural Complexes Located within Specially Protected Areas of Regional Significance in the Republic of Buryatia” which includes: patrolling the SPAs to reveal and prevent any violations of environmental legislation; monitoring the situation in forest areas during the fire season; installation of warning and informational signs and marking SPA boundaries using these signs; performance of biotechnical activities; recreational area facilities development (creation and development of bonfire sites, campgrounds, ecology trails, tourist routes, viewing platforms, leisure areas, sources, hotels and stopping places, info materials);

“Environmental Monitoring on Specially Protected Areas of Regional Significance in the Republic of Buryatia” includes: performance of record activities during the year; processing and analyzing the obtained materials; taking relevant measures.

## **2. Information about other current issues related to the World Heritage property conservation**

### *Overview of the Federal State Budget Institution Zapovednoe Pribaikalie*

According to Decree No. 251 adopted by the RF Ministry of Natural Resources and Environment on July 18, 2013, FSBI Pribaikalsky National Park and FSBI Baikalo-Lensky State Nature Reserve were reorganized by merging. The resulting entity was the Federal State Budget Institution Joint Directorate of Baikalo-Lensky State Nature Reserve and Pribaikalsky National Park (FSBI Zapovednoe Pribaikalie).

The total area of FSBI Zapovednoe Pribaikalie is 1,076,419 ha; the area occupied by Pribaikalsky National Park is 417 thous. ha, the one of Baikalo-Lensky Reserve — 659,919 ha. State wildlife sanctuaries of federal significance — Krasny Yar (49,120 ha) and Tofalarsky (132,700 ha) — are under protection.

The total number of staff employed by the entity is 233. 136 violations were registered in 2014: 111 legal proceedings on administrative violations were initiated; the court ordered the collection of a fine in the amount of RUB 276,500 with regard to 106 violations. In 2014, 41 fires occurred at the area of 1,714.85 ha. The fires were successfully suppressed.

There are 30 approved routes existing on the territory, 3 viewing platforms have been constructed, 25 leisure areas have been arranged. 9 ecology trails with the length of 388 km have been equipped with the necessary amenities. 7 types of info materials have been developed and published, with a print run of 5,137 copies.

In 2014, FSBI Zapovednoe Pribaikalie welcomed 3,651 tourist groups, with the total number of 37,012 visitors, including 51 foreign groups comprising 241 visitors.

The entity carries out applied and fundamental research in various fields focused on the investigation of natural complexes and sites and long-term monitoring with regard to the dynamics of natural and man-induced processes to evaluate general environmental situation in

the definite region. During the research, key principles of environmental protection, conservation of biological and landscape diversity, restoration of natural resources and prevention of damage caused to ecosystems of the reserve during various types of activities being performed beyond its boundaries are developed.

The entity monitors flora and fauna on an ongoing basis. In 2014, research work was carried out to cover the following subjects:

Observation of phenomena and processes in the natural complex and their investigation according to the Nature Chronicles Program;

Population status analysis of rare plant and animal species listed in the Red Book of the Russian Federation.

Data related to survey routes (winter walk-through surveys) covering all sites of the reserve and National Park have been processed, population density indices have been calculated for all main large mammals (Manchurian wapiti, elk, roe deer, musk deer, European reindeer, wild boar, wolf, lynx, wolverine, sable, common weasel, Siberian weasel, fox, polar hare, squirrel) and galliformes (wood grouse, hazel grouse, black grouse, Daurian partridge).

#### *Overview of FSBI Zapovednoe Podlemorie*

Forest fires of human and natural origin constitute a significant threat to Barguzinsky Nature Reserve, Zabaikalsky National Park and Frolikhinsky Sanctuary. All three SPAs are located in the zone exposed to dry thunderstorms often resulting in forest fires. In 2014, 8 forest fires caused by a lightning discharge were registered in the Barguzinsky Reserve.

In Zabaikalsky National Park, 12 forest fires were recorded, one of which due to the fault of locals; 7 fires resulted from thunderstorms and 4 fires were of undetermined origin. All fires at the total area of 533,75 ha were contained and suppressed.

It should also be mentioned that a drastic depletion of fish stock involving various species has been recorded in Lake Arangatui and Chivyrkuisky Bay of Zabaikalsky National Park, as well as increase in distribution and biomass of filamentous green alga (spirogyra) and water weeds in shallow areas of the coves within the Chivyrkuisky Bay. In the opinion of staff working at Siberian Branch of the Russian Academy of Sciences, these phenomena have resulted from a hidden eutrophication of the water surface adjacent to the places of mass gathering of people and possibly due to climatic and hydrographic features specific for this year.

Increasing alga biomass is accompanied with drastic changes in the structure and production performance of coastal aquatic ecosystems, can influence the number of fish species and yield potential of fish stocks. The issue is being investigated by research staff working at the Institute of General and Experimental Biology included in Buryat Research Center, Siberian Branch of the RAS and Limnological Institute, Siberian Branch of the RAS.

#### Recreation and educational tourism

Immediately after its establishment, Zabaikalsky National Park faced the challenges related to harmonization of its recreation and tourist activity, development of visitors' infrastructure with due account for environmental standards, i.e. setting up toilets, arrangement of stopping places, bonfire sites, road repairs, clearing and marking trails, installation of informational plates and signs.

The recreational load is extremely unbalanced not only in terms of seasons, but also with respect to geography: local areas along the Chivyrkuisky Bay coast and Barguzinsky Bay in Karga region are exposed to significant human impact. Vast territories intended to be used by tourists are difficult to access and do not bear actual recreational load.

On the territory of the National Park, there are 4 main popular tourist trails that are maintained and developed, such as: *The Way to Clean Baikal*, *Challenge Trail*, *To Zmeevaya Bay* and ecology trail along the Ushkan Islands. They are a part of the Great Baikal Trail (GBT) system, being involved in the arrangement of most tourist programs and routes.

In 2014, they finished reconstruction of an ecology trail to the rookery of Baikal seal at the Ushkan Islands, the activities related to the development and reconstruction of ecology trails on the territory of the reserve and sanctuary were continued.

About 50 camps have been renovated and repaired. Notwithstanding considerable efforts and material expenditures, the general availability of architectural landscape elements, toilets and garbage containers at the camps does not exceed 30—40%.

Insufficient number of toilets, their structural imperfections and high manufacturing and maintenance costs make it very difficult to render recreation services to tourists. There are no dedicated stations for pumping and disposal of bilge and fecal waters from vessels, their filling with petroleum, oil and lubricants.

On the territory of the National Park, there are private guest houses, yurt and tented camps and floating hotels for visitors' accommodation. Administration of FSBI Zapovednoe Podlemorie also provides 12 facilities with the total capacity of 50+ people for accommodation on the territories of Barguzinsky Nature Reserve, Zabaikalsky National Park, Frolikhinsky Sanctuary, as well as in Ust-Barguzin and Nizhneangarsk settlements. In 2014, construction, repair and reconstruction activities were continued at the facilities.

The analysis focused on long-term series of observations over various fauna and flora resources existing on the territory of Barguzinsky Nature Reserve that was continued in 2014 failed to reveal any trends of human origin, all observed dynamic processes turned to be naturally occurring and cyclic.

In 2014, man-induced impacts on the sites visited by tourists (recreation sites, ecology trails and biosphere experimental area of the reserve) did not exceed permissible recreational loads and were not accompanied with irreversible disruptive natural processes.

It should also be mentioned that in recent years the ordinary fish stocks have drastically reduced in Kabansky Wildlife Sanctuary and Selenga River estuary in general, one can also speak about decrease in their food supplies, in particular, biomass volume of *Gammarus lacustris* has declined.

A drop in fish stocks is also observed in the rivers of Baikal Reserve. Investigation of the matter is in progress, for this purpose, experts of the State Research Center for Fishery (Ulan-Ude) and Buryat Research Center, Siberian Branch of the RAS were involved in surveys in 2011—2012, definite reasons are revealed in the course of ongoing observations.

Forest fires of human and natural origin constitute a significant threat to the reserve. They practically never performed active business operations on the territory where the reserve is currently located, except for hunting, fishing and gathering wild crops. Many areas on the northern macroslope of the Khamar-Daban Ridge (most part of the reserve) have retained indigenous fir-cedar and pure cedar forests not being exposed to fires. On the southern macroslope covered mainly with light coniferous forests of pines and larches and partially with cedar forests, a part of the territory has suffered from fires, therefore old-growth indigenous forests occupy about a half of that area. In 2014, no fires were registered on the territories of the reserve and sanctuary.

One of the most significant factors contributing to environmental degradation in the area of Baikal Reserve is a negative impact of pollutant emissions from industrial enterprises of the region to forest vegetation. A specific feature of air transport in Lake Baikal basin is as follows: heavy precipitation occurred at the northern macroslope of the Khamar-Daban Ridge where most part of the reserve is located also contain chemical elements emitted by industrial enterprises of the Angarsk-Irkutsk industrial hub. The news related to the closure of Baikalsk Paper and Pulp Mill located 60 km far from the reserve was announced by Chairman of the Government of the Russian Federation in December 2013. The natural area is facing a long rehabilitation.

Along with global climate changes, the impact of pollutant emissions drastically reduces the threshold of fir and cedar growing stock tolerance to adverse factors and results in their partial drying on the downwind slopes of the Khamar-Daban Ridge. According to expert opinion

and subsequent to the results of surveys on quarantine phytosanitary condition carried out in the reserve in 2013—, Irkutsk Interregional Veterinary Laboratory revealed that coniferous plantation resources weakened due to pollutant emissions were affected by bacterial crowberry and also suffered from different (more than 10) fungal diseases.

In addition to such large-scale atmosphere pollution sources, there are other local sources in the region where the reserve is located, such as: railroad and highway infrastructures and also heating systems that are mainly coal-fired of the settlements in close proximity to the reserve. The level of local atmospheric pollutants impact on the reserve's biota is relatively insignificant, but nevertheless they undoubtedly have a great influence on ecosystems adjacent to pollution sources.

*Potential and real dangers related to the increase in the volume of pollutant emissions released in the air from industrial enterprises of the Baikal region.*

At present, pollutant emissions from industrial enterprises, regional atmosphere pollution sources, constitute a significant real and potential danger for ecosystems of the reserve. Great amount of sulphur compounds in dust and gas emissions leads to extreme acidification of liquid precipitation. At present, more than 15 ha of cedar and fir growing stocks, with irreversible changes and drying, have been recorded, which comprises  $\approx 12\%$  of the reserve's forest area. More accurate data will be specified in the course of forest management procedures in 2013—2015.

Taking in consideration the above, the reserve expresses its concern and hopes that there will be an opportunity in the nearest future to perform a complete forest pathology survey of the protected area and also for possible measures to prevent further environment deterioration in the South Baikal region.

Generally speaking, the ecological condition of the most part of Baikal reserve is favorable, except for rather huge areas with damaged coniferous forests on the northern macroslope of the Khamar-Daban Ridge; according to ongoing monitoring data, natural processes in ecosystems run smoothly without obvious deviations which gives us hope for their stable condition in future and preservation of main self-regulatory mechanisms in such systems.

The condition of aquatic and marsh ecosystems within Kabansky Wildlife Sanctuary also gives rise to concern which is due to regular attempts taken by hydropower engineers to obtain a permit to drop the water level in Lake Baikal below the one allowable at the moment and also due to the presence of pollutants in waters of the Selenga River coming together with effluents from upstream settlements and enterprises including a part of the adjacent territory of Mongolia.

It is expected that recommendations for taking management decisions related to imposing restrictions on the Selenga River pollution will be obtained as a result of UNDP/GEF project "Integrated Natural Resource Management in the Baikal Basin Transboundary Ecosystem", being currently developed jointly with Mongolia.

#### *Carrying out activities focused on Lake Baikal conservation*

In 2014, the following activities were carried out supported by the Ministry of Natural Resources and Environment of the Irkutsk Region:

Regional Children's Eco Festival *Baikal Kaleidoscope*;

Research and Practice Conference: Development of a System for Waste Recycling and Disposal in the Irkutsk Region;

Interdepartmental commission for Lake Baikal conservation;

Baikal Day;

Grand meeting of nature conservation representatives dedicated to the 60<sup>th</sup> anniversary of Pan-Russian Nature Conservation Society (RNCS), Irkutsk Regional Department and the 90<sup>th</sup> anniversary of national non-governmental organization RNCS;

13<sup>th</sup> Baikal Documentary and Popular Science Film Festival *People and Environment*.

FSBI Zapovednoe Pribaikalie, Irkutsk Regional Museum of Local Lore, Children's

Extended Education Center of the Irkutsk Region, Irkutsk Region Municipal Educational Institution of Children's Extended Education *Station of Young Naturalists*, I. P. Utkin Regional Library in Irkutsk, Federal State Budget Educational Institution of Higher Professional Education Irkutsk State University, local authorities and non-governmental organizations were closely involved in implementation of activities related to the Days of protection against environmental hazards.

The Days of protection against environmental hazards were held in 32 municipal districts of the Irkutsk Region, more than 900 activities (informational and educational activities, festive events, campaigns focused on municipal districts' sites improvement) have been carried out, with the participation of 400 + thousand people.

In the course of such campaigns and cleanup days related to site improvement, 64.4 thous. m<sup>3</sup> of garbage has been removed, 3,116 trees and shrubs have been planted. The activities implemented as part of the Days of protection against environmental hazards that have been arranged with the support of the Ministry were covered in mass media, on the website of the Irkutsk Region Government and the one of the Ministry. The materials related to the activities that were implemented as part of the Days of protection against environmental hazards were published in *Istok* newspaper on environmental issues of Baikal region during the year (12 publications of the Ministry).

In 2014, the Federal Service for Supervision of Natural Resources (Rosprirodnadzor) in the Irkutsk Region examined 26 sites in the central ecological zone of Lake Baikal natural area. Based on the inspection results, 44 violations with regard to the environment legislation requirements have been revealed.

Key violations detected as a result of control and supervision activities:

Based on the findings of patrol inspections with regard to discharge of production and consumption waste to the water catchment area of Lake Baikal and also hazardous substances disposal to the ice surface of Lake Baikal, inquiries were submitted to Irkutsk Regional Division of the Interior Ministry of Russia to find persons responsible for such violations.

**3. Significant changes within the World Heritage property** are not expected.