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## **Silver Taiga Foundation Progress report for 2016**

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## Primary activity

### 1. Contribution to establishment of Protected Areas on the basis of pristine forests (Yu. Pautov)

#### Objective for 2014-2016:

To search and strength compromise solutions on conservation and sustainable use of pristine forests in priority regions of the Komi Republic and to spread positive experience in Arkhangelsk region.

#### Planned activity for 2016:

##### 1.1. Koygorodok district

- Aligning a new configuration of HCVF II – Large Intact Forest Landscapes (LIFL) and Intact Forest Massifs (IFM) in the lase base of Mayskles company, adjacent to the territory of the designed Koygorodsky National Park, with Mayskles company, Transparent World, WWF Russia, and GREENPEACE Russia – *February 2016*.

##### 1.2. Udora district

- Organization of a complex expedition with participation of Scandinavian experts to the central part of the Verkhne-Vashka Large Intact Forest Landscapes (LIFL) in the Udora district, aimed at identifying the habitats of red-listed species, rare ecosystems, and landscapes for justification of establishing the PA of regional significance – *June 2016*.
- Processing of the expedition research materials. Preparation of a summary report, based on the materials of the complex ecological survey, conducted on the territory of the Verkhne-Vashka LIFL, that justifies giving it a legal status of the PA of regional significance, for submission to the Ministry of Natural Resources of the Komi Republic and Center of Protected Areas of the Komi Republic – *July-December 2016*.

##### 1.3. Other districts

- Updating the data on the boundaries of the LIFL and IFM of more than 500 ha in the Komi Republic as of 2015, based on the space imagery materials
- Identifying the LIFL and IFM boundary change for the period from 2000 to 2015, determining the reasons of these changes. Preparation of the Analytical note on the change of the intact forest landscapes boundaries in the Komi Republic for the period from 2000 to 2015 in the framework of the BPAN project – *December 2016*.
- Monitoring of HCVF 2 (Intact Forest Massifs) leased by the FSC certified enterprises of the Komi Republic and their suppliers - *throughout the year*.

##### 1.4. Additionally

- Organization of the field educational course "Regularities of the landscape-ecological dynamics of the Pechoro-Ilych reserve pristine forests" for Mondi Syktyvkar employees - *June 2016*.
- Preparation of the brochure layout "Demonstration routes on the landscape dynamics of the pristine forests of the Pechoro-Ilych biosphere reserve" - *December 2016*.
- Publishing of the information booklet "Forest treasure of the Komi Republic" about the conservation of the pristine forest massifs in the region - *November 2016*.
- Participation in the work of the Committee on the priority investment projects at the Ministry of Industrial Development of the Komi Republic - *throughout the year*.

#### Main achievements in 2016 include:

1. Organization of the complex expedition to the central part of the Verkhne-Vashka Intact Forest Landscape in Udora district aimed at detection of Red Book species habitat, rare ecosystems and landscapes with the involvement of Scandinavian and Russian experts in order to establish the Osa Complex Reserve, PA of regional significance – *June 2016*.
2. Preparation of the *Environmental Justification for the Osa Complex Reserve in the Core of the Verkhne-Vashka Intact Forest Landscape (within the boundaries of the Komi Republic)* based on the data of the complex expedition to the central part of the Verkhne-Vashka Intact Forest Landscape, its submission to the Ministry of Natural Resources of the Komi Republic

- and PA Center of the Komi Republic, agreement of further actions related to establishment of the Osa Complex Reserve – *January 2017*.
3. Agreement of the new configuration of the HCVF II Intact Forest Landscapes and Intact Forest Massifs in the lease base of Maiskles company adjacent to the planned-to-be Koygorodok National Park with Maiskles, NGO Transparent World, WWF Russia and Greenpeace Russia – *February 2016*.
  4. Update of data on the boundaries of Intact Forest Landscapes and Intact Forest Massifs with the area of over 500 ha in the Komi Republic as of 2015 based on space images. Detection of changes of the boundaries of IFL and IFM in the period from 2000 to 2015. Agreement of the materials related to changed boundaries in the Komi Republic for the 2006 – 2015 period with WWF Arkhangelsk (D. Dobrynin) and NGO Transparent World (D. Aksenov, D. Koltsov) in order to submit the agreed IFM boundaries for the summary report under the BPAN project phase 2 – *October 2016*.

### **Detailed results:**

#### **1.1. Koygorodok district**

Agreement of the new configuration of the HCVF II Intact Forest Landscapes and Intact Forest Massifs in the lease base of Maiskles adjacent to the planned-to-be Koygorodok National Park with Maiskles, experts of NGO Transparent World (M. Karpachevsky), WWF Russia (K. Kobayakov) and Greenpeace Russia (A. Yaroshenko) – *February 2016*.

#### **1.2. Udora district**

- Organization of the complex expedition to the central part of the Verkhne-Vashka Intact Forest Landscape in Udora district aimed at detection of Red Book species habitat, rare ecosystems and landscapes in order to justify the establishment of the PA of regional significance (*June 2016*). The expedition was held by Silver Taiga's experts Yu. Pautov, N. Shuktomov, S. Davydov, and the following external experts: lichenologist N. Semenova and zoologist A. Korolev (Institute of Biology of the Komi Scientific Center), phytosociologist A. Zagidullina (Saint Petersburg University), phytosociologist and GIS expert D. Koltsov (NGO Transparent World, Moscow), landscape scientist A. Stolpovsky (Arkhangelsk), mycologist (Aphylophorales) O. Manninen and lichenologist H. Jauhiainen (Finland). The expedition lasted ten days and enabled the experts to cover over 250 km of routes, inspect main types of landscapes and ecosystems of the remote and poorly explored area, collect rare and endangered species of plants, fungi, lichens (see <https://photos.google.com/share/AF1QipNWeLtW6PnNFfFwqKWi9wFFTWSggMWGPsUZwPn8DsMMsM5Rj75Ij472Qbr8eo3tYg?key=TjKxR1kwNUZiY1Vha2x2YWwhIUGNOYmpxbEpJd3d3>), collect samples for the genetic evaluation of the most southern European population of the forest reindeer.

The key environmental value of the planned PA is that it will unite the clusters of Uftyuga-Ilesha landscape reserve already established in Arkhangelsk region in one extensive massif and thus will allow to preserve the watershed of the Osa, Poch, Uftyuga and Ilesha, tributaries of big northern rivers – the Vashka, Vychegda and Pinega. The final summary report is being edited, as the reports of some experts arrived late.

#### **1.3. Other districts**

- Update of data on the boundaries of IFL and IFM with the area of over 500 ha in the Komi Republic as of 2015 based on space images.
- Detection of changes of the boundaries of IFL and IFM in the period from 2000 to 2015, determination of causes of such changes. Submission of the current IFL and IFM status

data to NGO Transparent World for the summary report under the BPAN project phase 2 – *October 2016*.

- Monitoring of the HCVF II in the lease base of the enterprises – FSC certificate holders in the Komi Republic and their suppliers – throughout the year (based on the requests from companies and Certification authorities) – *throughout the year*.
- Organization of the field educational course on the regularities of the landscape and environmental dynamics of the pristine forests in the Pechoro-Ilych Biosphere Reserve for 10 employees of wood harvesting subdivisions of Mondi Syktyvkar – *June 2016*.
- Publishing of the information booklet *Forest Treasure of the Komi Republic* about the conservation of the pristine forest massifs in the region – *in the publishing process*.
- Participation in the Committee on the priority investment projects at the Ministry of Industry of the Komi Republic – *1 meeting during the year*.
- Drafting the layout of the brochure *Demonstration routes for Landscape Dynamics of the Pristine Forests in the Pechoro-Ilych Biosphere Reserve* – *rescheduled to 2017 as agreed with the administration of the Reserve*.

#### **1.4. Additionally:**

- Presentation *Key Achievements and Failures in Preservation of the HCVF and Main Priorities in the HCVF Conservation in the Komi Republic up to 2020* at the meeting of the BPAN Project Working Group, St.Petersburg – *February 2016*.
- Presentation *Current Status of IFM Conservation in the Komi Republic* at the Round Table meeting held in Arkhangelsk – *October 2016*.
- Presentation *Actual Condition and Perspectives of IFL Conservation at the Boundary of Komi and Arkhangelsk Region* at the meeting of the BPAN Project Working Group in Stockholm – *November 2016*.

#### **Cooperating organizations (in alphabetic order):**

- Administration of Koigorodok and Udora districts of Komi
- BPAN Project – PA network of Barents region
- Forestry Office of the Ministry of Natural Resources of the Komi Republic
- FSC Office in Russia
- Greenpeace Russia
- Institute of Biology of the Komi Scientific Center
- Lesozavod №1, logging company
- Mayskles company
- Ministry of Industry of the Komi Republic
- Ministry of Natural Resources of the Komi Republic
- Mondi Syktyvkar
- Reserve “Nurgush-Tulashor” – Kirov region
- State Forestry Units in Koigorodok and Letka
- PA Center of the Komi Republic
- Transparent World NGO, Moscow
- WWF Russia.

## **2. Ecosystem and landscape background for forestry and FSC planning (N. Shuktomov)**

### **Objectives for 2014-2016:**

- 2.1. Supporting forestry and FSC planning with background GIS layers based on different methods of data collection including fieldwork linked to databases and recommendations important for planning. To establish first cartographic base for river catchments and first recommendations on catchment's management (watershed, slopes, terraces, wetlands of stream valleys, streams and rivers).
- 2.2. Preparation the draft of "Recommendations on HCVF and key biotopes identification, preservation and monitoring on FSC certified areas" in compliance with criteria 6.2, 6.3, 6.4, 9.2, 9.3, 9.4 of Russian FSC Standard (version 6-1) for various level planners (base, medium, advance).
- 2.3. Developing educational course on landscape-ecological planning of forest management on base of ERS materials in Komi Model Forest area.
- 2.4. Developing the "Recommendations on monitoring of flora and fauna on FSC-certified areas". in compliance with criteria 8.2.7 of Russian FSC Standard (version 6-1) together with FSC Russia and WWF Russia.

### **Planned activity for 2016:**

#### **2.1.To support forestry planning in order to meet the FSC requirements with the help of GIS technologies based on different methods of data collection.**

- Monitoring of the condition of the key biotopes and key forest elements, preserved by different methods, for the period from 2008 to 2015 in the pilot basins of the river Sedka and river Yn – *June-August 2016*.

#### **2.2.To prepare the draft of "Recommendations on HCVF and key biotopes identification, preservation and monitoring on FSC certified areas".**

- Aligning the project "Recommendations on the landscape-ecological planning of forest use with account of the FSC certification requirements" with the stakeholders – *March 2016*.
- Aligning and approval of the project "Recommendations on the landscape-ecological planning of forest use with account of the FSC certification requirements" at the Technical Council of the Ministry of Natural Resources of the Komi Republic – *May 2016*.
- Preparation of a layout and publishing of "Recommendations on the landscape-ecological planning of forest use with account of the FSC certification requirements" – *December 2016*.

#### **2.3.To develop educational course on landscape-ecological planning of forest management on base of ERS materials in Komi Model Forest area.**

- Organization and conducting of an educational field course on the landscape-ecological planning of forest use based on the ERS materials, with account of the FSC certification requirements, in the Komi Model Forest for the specialists of the forestry units and State Forestry Administration of the Ministry of Natural Resources of the Komi Republic – *October 2016*.
- Organization and conducting of two educational seminars on the landscape-ecological planning of forest use with account of the FSC certification requirements in the Komi Model Forest for the stakeholders from Koygorodok and Priluzje districts of the Komi Republic – *July-August 2016*.
- Development of the Information WEB-service concept for dissemination of the cartographic project materials of the Silver Taiga Foundation – *December 2016*.

### **Main achievements in 2016 include:**

1. Agreement, drafting and publishing of the brochure *Recommendations on the Landscape and Environmental Planning of the Forest Use with Account of the FSC Certification Requirements*, authors: D. Kutepov, Yu. Pautov, N. Shuktomov, A. Borovlyev – *May-December 2016*.
2. Preparation and organization of field educational course on landscape and environmental planning of forest use based on the ERS materials with the account of FSC requirements. 10 demonstration sites in Priluzye, Sysola and Koygorodok forestry units at 2015-2016 logging plots with biodiversity preserved and natural forest dynamics imitated were selected,

described and documented. The demonstration sites were integrated into 3 areas geographically related to logging plots of Mondi Syktyvkar. A quadcopter was used for the first time to describe logging areas and landscapes. 116 harvesting machinery operators, forestry foremen and specialists of Mondi Syktyvkar's subsidiaries were trained. The customer's feedback about the training course was positive and the program caused much interest from stakeholders. The results of the trainees' tests and proposals with regard to delineation, harvesting and reforestation quality improvement based on the FSC requirements were provided to Mondi Syktyvkar's management as a summary report – *August-October 2016*.

3. A field educational course on observation of environmental requirements under the National FSC standard with the use of GIS methods and ERS materials for the employees of the wood logging company SevLesPil – *May 2016*.

### **Detailed results:**

- 2.1. Monitoring of key forest biotope (KB) and key element (KE) condition was held as part of the selection and description of demonstration sites for the field course on landscape and environmental planning of forest use in Priluzye, Sysola and Koygorodok forestries, and with the help of Landsat 8 and Sentinel 2A images. KB were found in good condition, preserved in hollows and lowlands, and as seed blocks at logging areas in pine and deciduous stand at pleurocarpous moss forests. Environmental functions of KB (water protection, water flow control, biodiversity preservation, rare species habitat conservation, preservation of mosaic structure of landscape, etc.) are mostly still performed. High mortality of KE resulting from windfall was noted. In parallel, 2015-2016 logging areas were assessed in terms of their compliance with the Russian National FSC Standard requirements. Some 2015-2016 logging areas were found non-compliant with the standard. The violations are described in the summary report on the field course submitted to Mondi Syktyvkar management.
- 2.2. The draft of *Recommendations on the Landscape and Environmental Planning of the Forest Use with Account of the FSC Certification Requirements* was sent to Tekhkarta and some acting FSC consultants for review. The draft of *Recommendations on the Landscape and Environmental Planning of the Forest Use with Account of the FSC Certification Requirements* was not approved due to reorganization of the Ministry of Natural Resources of the Komi Republic in October-December 2016 and establishment of the integrated Ministry of Industry, Natural Resources, Transport and Energy of the Komi Republic.
- 2.3. Organization and execution of training courses for employees of forestry units and Administration of Forestry at the Ministry of Natural Resources were postponed to 2017 due to reorganization of the Ministry of Natural Resources of the Komi Republic.
- 2.4. Creation of the WEB tool for Silver Taiga to share project imaging data was postponed to 2017, as such a tool cannot be installed at the existing website [www.silvertaiga.ru](http://www.silvertaiga.ru). The new online platform is planned to be developed in the 1<sup>st</sup> quarter 2017.
- 2.5. **Additionally:**
  - The Foundation's experts N. Shilov and N. Shuktomov successfully completed FSC Russia and WWF Russia's training course for FSC consultants.
  - Participation in the field tests and kick-off workshop for the Transparent Forest project developed by the European Space Agency under the request of FSC International in Udora district, Komi Republic, jointly with the certification department of Mondi Syktyvkar, FSC Russia, Forest Certification, and Tekhkarta.

**Cooperating organizations (in alphabetic order):**

- FSC Russia
- Greenpeace Russia
- Institute of Biology of the Komi Scientific Center
- Koigorodok forestry unit
- Luzales – wood harvesting and processing company
- Ministry of Natural Resources of the Komi Republic
- Mondi Syktyvkar
- Priluzje, Sysola and Ust-Nem forestry units
- Skanex – cartographic company – Moscow
- Syktyvkar Forest Institute
- Tekhkarta – cartographic company, Syktyvkar
- Transparent World NGO, Moscow
- WWF Russia.

### **3. Model River Mezen – cooperation with local communities (V. Semyashkina, N.Shilov)**

#### **Main objective:**

To restore fish resources of the Model River and to manage them sustainable way in cooperation with local population and other interested parties.

#### **Objectives for 2014-2016:**

- 3.1. Creating public awareness on problems related to fish resources and possible solutions. Ensuring public access to this information.
- 3.2. Promoting development of sustainable resource management methods among local users following local population being aware of current problems and jointly discussing them.
- 3.3. Information, tutorial and administrative support of local entrepreneurs and initiators of tourism development and recreational management of river resources.
- 3.4. Developing cooperation between municipalities along the Mezen river (Udora district of the Komi Republic, Leshukonskoye and Mezen districts of Arkhangelsk region).
- 3.5. Developing public self-government and cooperation among citizens of settlements located along the Mezen river (within districts and between districts).
- 3.6. Supporting environmental, educational and regional study activities among students and youth under the project subject (cooperating with schools and vocational education institutions).
- 3.7. Elaborating proposals for the regional legislation relating to the role of traditional resource management of the river for the sustenance of the local population.
- 3.8. Disseminating information on the project and its results (information support of the project).

#### **Planned activity for 2016:**

##### **3.1. Creating public awareness on problems related to fish resources and possible solutions. Ensuring public access to this information.**

- Meetings with the population (informing on the project implementation progress and presentation of the "Let's Preserve Salmon!" program by the Green troops propaganda team) - in the Leshukonsky district of the Arkhangelsk region and in the villages of the Udora district located along the river Vashka (the main tributary of the Mezen). Jointly with the Udora Central Library System – *February 2016, August 2016*.
- Manufacture according to the developed designs and installation of information boards (banners) on the topic of river resources conservation in the most visited places along the Mezen in the Udora district (6-8 information boards) – *May-June 2016*.
- A roundtable on the sustainable river resources management and the role of the local population in such management, with participation of the rural youth representatives. At the premises of the National museum in Koslan. An acquaintance with the exposition "The Mezen: history of the river resources management", and a discussion - *March 2016*.
- 6 editions of the thematic supplement to the Udora district newspaper – *throughout the year*.
- Publishing of a wall calendar 2017, presenting the villages located in three districts on the banks of the Mezen – *November-December 2016*.
- Preparation and publishing of a book – collection of research articles on the Mezen river ichthyofauna, current state of the fish resources, nature use traditions of the local population, Model River Mezen project initiatives (jointly with the Institute of Biology of the Komi Scientific Center, Ural Branch of the Russian Academy of Sciences) – *April 2016*.
- Informing of the population through the network of libraries. Jointly with the Udora Central Library System and involvement of the libraries of the Leshukonsky and Mezen districts – *throughout the year*. Including:
  - organization of a summer reading eco-room in the villages Bolshaya Pyssa – *June-August 2016*;
  - visiting meetings in the villages along the river Vashka with a review of the literature on the project topic and discussion of the fish resources management problems – *March 2016*;
  - a readers' conference-discussion on the novel of Fyodor Abramov "Once upon a time there lived a salmon" in the Leshukonskaya district library – *February 2016*.

##### **3.2. Promoting development of sustainable resource management methods among local users following local population being aware of current problems and jointly discussing them.**

- Coordination of the project Working Group activity. Preparation and conducting of 2 Working group meetings (topics: coordination and clarification of the plans for 2016; preparation for the visiting roundtable in the Leshukonsky district in February 2016; results of the II project implementation stage, etc.) – *February, November 2016*.



- Meetings with the AgroUdora propaganda team on the Vashka (informing on the project implementation progress, provision of public support). *Jointly with the Udora representative office of the interregional public movement "Komi voytyr" – March 2016.*
- The roundtable "Upper reaches of the Mezen: has the termination of the organized amateur fishing improved the situation?" Discussion, development of the draft proposals on the restriction of the access to the upper reaches of the Mezen during the salmon spawning period. *Jointly with the Center of Protected Areas of the Komi Republic – May 2016.*

### **3.3. Information, tutorial and administrative support of local entrepreneurs and initiators of tourism development and recreational management of river resources.**

- Exchange of experience in the recreational use of river resources (a study visit of the rural tourism organizers - residents of the Udora district - to the Pinega district of the Arkhangelsk region, meetings and a seminar on the experience exchange) – *April 2016.*
- Supervision of the development and implementation of the local projects, methodological support of the rural public initiatives authors participation in the grant competitions. Jointly with the NGO "Indigenous women of Komi" and the Udora representative office of the interregional public movement "Komi voytyr" – *throughout the year.*

### **3.4. Developing cooperation between municipalities along the Mezen river (Udora district of the Komi Republic, Leshukonskoye and Mezen districts of Arkhangelsk region).**

- A roundtable on the nature use and the Mezen fish resources management problems (information on the 2014 conference decisions implementation progress, results of the population survey, conducted in three districts, and a discussion). The village Leshukonskoye. The participants - residents of the Leshukonsky district villages, with participation of the representatives from the Udora and Mezen districts) – *February 2016.*

### **3.5. Developing public self-government and cooperation among citizens of settlements located along the Mezen river (within districts and between districts).**

- Rural territorial self-government (TPSG) in the Mezen districts, their role in the development of the self-government and cooperation in the local communities of the Udora, Leshukonsky and Mezen districts. A series of publications in the district newspapers, aimed at the rural TPSG work experience exchange (jointly with the Udora representative office of the interregional public movement "Komi voytyr", activists of the TPSG of the Leshukonsky and Mezen districts) – *5-6 publications throughout the year.*

### **3.6. Supporting environmental, educational and regional study activities among students and youth under the project subject (cooperating with schools and vocational education institutions).**

- The practice of implementing the author educational program on the Mezen basin ichthyofauna in the Vazhgort school and the methodological handbook presentation. A seminar. The participants – teachers from the Udora district – *March 2016.*
- Publishing of the author educational program and methodological handbook on the Mezen ichthyofauna for dissemination in the Mezen district schools – *April 2016.*
- Dissemination of the educational program and methodological handbook on the Mezen ichthyofauna in the rural schools of the Mezen districts, their adaptation and implementation. A seminar on the experience exchange – *December 2016.*
- The district conference of schoolchildren "Origins", conducted in the premises of the Usogorsk school (jointly with the Center of Protected Areas and district education department) – *September 2016.*
- Information and methodological support of the school "River patrol" activity in the Vazhgort secondary school – *throughout the year.*
- Support of the summer ecological and regional history-exploration expeditions of schoolchildren and river banks cleaning campaigns – *June-August 2016.*
- Organization of a summer field school for the schoolchildren of the Udora district in the village Bolshaya Pyssa. Jointly with the Center of Protected Areas of the Komi Republic and Udorachi indigenous people community – *June 2016.*
- Schoolchildren research works competition "The role of the river in the life of the Udora Komi: history and present day" (in the Udora district). *Throughout the year with the results summary in December 2016.*
- Schoolchildren creative works competition "River of my childhood" (in the Mezen and Leshukonsky districts). *Throughout the year with the results summary in December 2016.*
- Preparation and publishing of a pupils' research works collection (outcomes of the field school operation for 2015 – 2016 and pupils' research expeditions, organized within the frameworks of the project) – *November 2016.*

**3.7. Preparation of the proposals to the regional legislation, considering the role of the traditional river resources management for the sustenance of the local population.**

**3.8. Disseminating information on the project and its results (information support of the project).**

- Publications in the mass media of the Komi Republic and Arkhangelsk region.
- Project information support on the website [www.silvertaiga.ru](http://www.silvertaiga.ru).
- Participation in the republican and interregional conferences on the sustainable development with reports about the river resources management problems and project progress.

**Main achievements in 2016 include:**

1. Expansion of the community and higher involvement of local residents and organizations of the near-Mezen districts engaged in the project (residents of villages along the Vashka river, committed inhabitants and organizations of Mezen and Pinega districts, Arkhangelsk Region).
2. Development of discussion platforms to address the focus areas of the project (thematic round table meetings in Udora district, discussion of the project focus areas at the Natural Management and Environment Section at the Komi People Conference at the regional level, round table meetings in Leshukonskoye and Pinega districts with Udora residents and project's Working Group members involved at the interregional level).
3. Provision of the information about the project at the regular Komi People Conference (Interregional Public Movement *Komi Voytyr*), which recommended the Governor and Government of the Komi Republic "to support the initiative of the development and implementation of the interregional program of the Atlantic salmon conservation in the Mezen river", as was stated in the final reports of the Conference.
4. Activation of local initiatives, independent development and implementation of minor projects by local residents (propaganda team of student volunteers in the village of Chuprovo, participation in grant competitions and implementation of local projects in Syolyb and Yortom villages).
5. Development and expansion of the area covered by environmental and educational activities with schoolchildren (field ichthyology camp, River Patrol, environmental and regional study expeditions, contests and a conference).

**Detailed results:**

**3.1. Creating public awareness on problems related to fish resources and possible solutions.**

**Ensuring public access to this information.**

- Meetings of the Project Working Group with local residents in Leshukonskoye district villages, in Udora district villages along the Vashka River were held. The topics discussed with the participants were current status of fishery resources in the Mezen, new Fishing Rules, status of the Model River Mezen project.
- 8 informative banners focusing on river resources conservation, especially on preservation of the Atlantic salmon as a flagship species, were designed and installed at most visited places along the Mezen river in Udora district.
- A round table meeting on sustainable management of river resources was held with the involvement of rural youth in the central library of the village of Koslan. Representatives of the AgroUdora Cooperative and local activists of Komi Voytyr also participated in the event.
- 6 issues of the thematic newspaper *Model River Mezen*, the supplement edition to the Udora district newspaper, were designed, published and spread (1600 copies were received by Udora subscribers, 500 copies were sent to rural settlements of Leshukonskoye and Mezen districts by mail).

- 2017 wall calendar showing pictures of villages and settlements along the Mezen river in three districts was published and spread. Residents of near-Mezen districts took active part in preparation of the contents and making photos.
- Libraries of Udora district were actively involved into the awareness building activities under the project: information stands were installed at the branches of the centralized library system, summer eco-reading rooms were organized in Udora vilaaages. The propaganda team of student volunteers from the branch of the central library in the village of Chuprovo made informative visits to settlements along the Vashka river on the need to care about river resources and the status of the project; a discussion conference for readers after Fedor Abramov's short novel *Once Upon a Time There Lived a Salmon* was arranged in Vazhgort library.
- Some materials for the collection of articles about the Mezen river ichthyofauna, current condition of fishery resources, local traditions of natural resource management and the Model River Mezen project – *Mezen: Sustainable River Resource Management Issues* – were prepared. The book will be published in 2017.

### **3.2. Promoting development of sustainable resource management methods among local users following local population being aware of current problems and jointly discussing them.**

- Two project's Working Group meetings were held, with the following issues discussed:
  - Results of the first five years of the project and possible solutions for the problems obstructing sustainable river resource management;
  - Detailed elaboration of action plan for 2016 and discussion of the perspectives of the project focus areas (in the coming 5 – 6 years);
  - 2016 results and project plans for 2017.
- Meetings with representatives of AgroUdora were held in villages by the Vashka river to inform them about the project status, discuss the opportunities and challenges of managing fishery plots in the cooperative, with the Glotovo branch of AgroUdora being the model, jointly with the Komi Voytyr and State Aquatic Bioresources Inspection of Komi.
- On 17 November 2016 a round table meeting *Mezen Upper Reaches: Has Ceased Amateur Fishery Improved Situation?* was held in Koslan with the involvement of local, district and regional stakeholders. The results of the discussion was a joint resolution on restricted visits of the Udora complex reserve of the regional significance for 7-8 years in the high season of spawning of the Atlantic salmon (from 10 September to 30 October). Practical steps of how to bring the resolution into life were also discussed.

### **3.3. Information, tutorial and administrative support of local entrepreneurs and initiators of tourism development and recreational management of river resources.**

- A visit tour for rural tourism facilitators from Udora district was arranged to Pinega district, Arkhangelsk region. Two experience exchange workshops were held. Exchange of tourist groups is planned to be arranged between Pinega and Udora districts – *September 2016*.
- Training of local Udora residents for participation in grant competitions. As a result, 2 local projects initiated by Syolyb territorial self-government (improvement of springs near the village) and by Yortom library (organization of a folk craft workshop) got funding in the grant competition Active Generation facilitated by the Dobry Gorod Petersburg Charity Fund – *March-December 2016*.

### **3.4. Developing cooperation between municipalities along the Mezen river (Udora district of the Komi Republic, Leshukonskoye and Mezen districts of Arkhangelsk region).**

- The *Problems of the Mezen's Natural and Fishery Resource Management* round table meeting was held in the Leshukonskoye district center, with the participation of

Leshukonskoye, Udora and Mezen districts, and Ministry of Agriculture of Arkhangelsk region. The participants discussed the status of resolutions taken at the 2014 interdistrict conference, survey results of the three districts, opportunities for more active public engagement into fishery resource management (with the Mezen district public fishery council as a model) – *February 2016*.

- A workshop devoted to the experience of the Udora central library's cooperation with Silver Taiga was held in the Leshukonskoye central library as part of the Model River Mezen project – *February 2016*.
- Regular information exchange – publications of interviews and other materials from Mezen and Leshukonskoye districts as supplements to the Udora district newspaper, joint edition of the calendar *Along the Mezen* containing information about the populated areas of the three Mezen districts – *throughout the year*.

### **3.5. Developing public self-government and cooperation among citizens of settlements located along the Mezen river (within districts and between districts).**

- Publications of cases of successful territorial self-governing in rural areas for the Udora district newspaper.

### **3.6. Supporting environmental, educational and regional study activities among students and youth under the project subject (cooperating with schools and vocational education institutions).**

- The individual educational program *Ichthyofauna of the Mezen Basin* was implemented in the Vazhgort school, its elements were used in the River Patrol initiative realized there. The program was provided with informational and consulting support, and the school was granted the mini express laboratory used for the research conducted by children.
- A biology teacher from the Vazhgort school developed a handbook on the Mezen ichthyofauna, which was presented on 24 January 2017 (district workshop for biology teachers).

Note: publication of the individual educational program and the handbook on the Mezen ichthyofauna to be shared with schools in near-Mezen districts was postponed to 2017 (after it is approved by the Komi Republic Institute of Education Development). Therefore, the workshop for the program adoption and implementation experience exchange for other schools was also rescheduled to 2017.

- The district schoolchildren conference *Istoki* was held in the Usogorsk school jointly with the Udora district education administration and the Center of Protected Areas of the Komi Republic on 20 January 2017.

Note: the conference planned to be held in September 2016 was postponed after the request of the education administration due to high workload of teachers in the first month of the academic year.

- Three environmental and regional study expeditions were held for schoolchildren during the summer break with the project's support (jointly with the Usogorsk Children's Activity Center; Ozherlye Udory (a tour company) and with parents involved). The participants of the expeditions did research and at the same time cleaned banks of the river (as part of the regional River Band environmental event).
- The Summer field school for Udora students was arranged in the village of Bolshaya Pyssa (with the Komi Republic PA Center and Udorachi Indigenous People Community involved) – *June 2016*.
- Schools of Udora district held a contest of schoolchildren's research works on the *Role of the River in the Udora Residents' Traditional Way of Life: History and Present Days*. The contest results were announced at the *Istoki* conference in January 2017.

- The essay contest *River of My Childhood* for schoolchildren announced in Leshukonskoye district was not followed in the schools of the district (only 2 essays were submitted).  
Note: publication of the collection of schoolchildren's research works planned in November 2016 was postponed as the final conference where the works are to be presented was rescheduled to 2017.

**3.7. Elaborating proposals for the regional legislation relating to the role of traditional resource management of the river for the sustenance of the local population.** The activity has not been planned for 2016.

### **3.8. Disseminating data on the project and its results.**

- The project status was regularly updated at [silvertaiga.ru](http://silvertaiga.ru) (18 releases throughout the year) and in newsletters sent to 220 recipients in Russia and abroad.
- Publications about events were posted at official websites of Udora and Leshukonskoye municipal districts <http://www.udora.info>; <http://www.leshukonia.ru>; at news websites [www.bnkomi.ru](http://www.bnkomi.ru), [www.komiinform.ru](http://www.komiinform.ru) and others.
- Information about the project activities was periodically provided through *Komi Gor* Radio programs (in the Komi language), with members of the project Working Group and the AgroUdora cooperative interviewed. The project was also announced in *the Zvezda* newspaper of Leshukonskoye district, and in the Environmental Bulletin of Pechora Area – *throughout the year*.
- The project was also presented at the Natural Management and Environment Section at the XI Komi People Conference. As a result, the Conference Resolution recommended the Governor and Government of the Komi Republic “to support the initiative of the development and implementation of the interregional program of the Atlantic salmon conservation in the Mezen river” – *February 2016*.
- The project activities were shared in Pinega district, Arkhangelsk region – *September 2016*.
- Students and professors of the Republic Center of Environmental Education were informed about the project during the joint field trip to a lake to study the role of oxygen for hydrobionts and methods of addressing fish mortality in winter.

#### **Cooperating organizations (in alphabetic order):**

- Administration of Leshukonskoye and Mezen districts of Arkhangelsk region
- Administrations of the near-Mezen districts rural settlements
- Administration of Udora district of Komi
- Agroudora, agricultural consumer cooperative
- Editorial offices of “Vyl Tuyod” and “Zvezda” newspapers
- Education Department of the Administration of Leshukonskoye and Udora districts
- Interregional Public Movement “Komi Voytyr”, NGO
- Mezen Local History Museum
- National Museum of the Udora District
- Ozherelye Udory, tour company
- PA Center of the Komi Republic
- Regional public movement “Native Women of Komi”
- Republican territorial public self-government association (ATOS)
- Secondary schools of Udora settlements
- Territorial Self-Government of Udora and Mezen villages
- Udora branch of the Federal Institution of Water and Fishery Management (Komirybvod)
- Udora centralized library system
- Udora NGO “Udorachi”
- Usogorsk Children's Activity Center.

## 4. Model River Mezen – restoration of fish resources (N.Shilov)

### **Main objective:**

To restore fish resources of the Model River and to manage them sustainable way in cooperation with local population and other interested parties.

### **Planned activity for 2016:**

#### **4.1. To support development and start of implementation of the target interregional Mezen salmon preservation and restoration program initiated by the project (hereinafter referred to as the Program):**

4.1.1. To coordinate the activity of the interregional working group on the Program section development.

- Organizing and holding of two meetings of the interregional Working Group – *April, November 2016.*

4.1.2. To organize cooperation of partners from Komi and Arkhangelsk region in the Mezen river basin.

- Conclusion of a cooperation agreement with the Udorachi indigenous people community on the organization and search of the legitimate forms of traditional use for the local residents needs – *September 2016.*
- Organization of a joint work of the NGO “Komi voytyr” and Ministry of Natural Resources of the Komi Republic, aimed at the search of further mechanism to control the attendance of the spawning and nursery grounds (SNG) of the Atlantic Salmon in the Mezen river basin during the spawning period – *throughout the year.*

4.1.7. To suggest mechanisms (forms) of public control and to promote establishment of such control.

- Assisting in the establishment of the public fishing council of the Udora district – *throughout the year.*
- Supervision of the public council operation – *throughout the year.*
- Provision of consultation services – *throughout the year.*

### **Note:**

As for sections 4.1.3, 4.1.4, 4.1.5, 4.1.6, no activities are planned in 2016.

#### **4.2. To establish monitoring of fishery projects implemented on the Mezen river**

- Conducting of a practical seminar on the monitoring methodology for the AgroUdora cooperative members – *July, August 2016.*
- Monitoring implementation – *May-September 2016.*
- Informing of the project stakeholders, local population, and society about the monitoring results (publications in mass media) – *October 2016.*
- Assessment of the situation in the field of aquatic biological resources harvesting and protection in the Leshukonsky district of Arkhangelsk region – *February 2016.*
- Study of the experience in planning and implementation of the fishery projects, bioindication methods, and logging impact on the water objects, Poland – *April 2016.*
- Provision of financial support to the AgroUdora cooperative for participation in the grant project on the development of the material and technical resources – *November 2016.*

#### **4.3. To proceed with the annual monitoring of quality of spawning and salmon spawning grounds.**

- Exploration of the salmon spawning grounds in the Mezen river basin to prepare their description. (jointly with the Institute of Biology of the Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences) – *August 2016.*
- Creation of a textbook of methods and photomaterial on the redds accounting method – *October 2016.*
- Organization and holding of a seminar for the users (leaseholders, local population, and other stakeholders) devoted to the training on monitoring methods and identification of the salmon nests (aimed at the preparation of the skilled labour for participation and conducting of the monitoring and other field works in the project framework – *September 2016.*
- Carrying out of the field expeditions, aimed at the monitoring of the salmon population reproductive part – *October 2016.*

#### **4.4. To organize cooperative activities on fish protection together with the Department of the Russian Fishery Agency in the Komi Republic and State Inspection of Small Vessels).**

- Holding of consultative and advisory meetings with the local population in the settlements along the rivers Vashka and Mezen – *June 2016.*
- Illegal fishing prevention – *June 2016.*

**4.5. To support projects on restoration of nonmigratory fish species.**

- Support of the valuable commercial fish species populations on the fishing grounds, leased by the AgroUdora cooperative: participation in the fish stocking activities – *June 2016*.
- A seminar on the projects implementation and fund raising with the representative of the Association of the territorial public self-government of the Komi Republic for the residents of the Udora district engaged in the commercial fishing – *March 2016*.
- Submission of an application to the Russian Fishery Agency for inclusion of the AgroUdora cooperative fishing grounds to the government assignment for reclamation works – *November 2016*.
- Seeking alternative ways for the reclamation activities execution – *throughout the year*.

**4.6. To support fish resources protection activities conducted by the Fishery Supervision Institution (Rybnadzor) and Komirybvod and users' activities on restoration of non-migratory fish species:**

- Provision of financial support to the Komirybvod for implementation of the activities, aimed at the restoration of the non-migratory fish species populations in the Mezen river basin – *June 2016*.
- Provision of financial support to the Department of the Russian Fishery Agency in the Komi Republic – *June 2016*.

**Main achievements in 2016 include:**

- Management and members of the AgroUdora cooperative, the only operator of fishery plots in Udora district dealing with fish catchment and sales, started showing real interest in the project and independence in achieving the objectives:
  - ✓ Cooperative members started fishery monitoring.
  - ✓ They sent an application to include fishery area improvement activities into the 2017 Reclamation Plan.
  - ✓ The cooperative strengthened its facilities through participation in grant projects (supported by Silver Taiga).
- Continued monitoring of salmon spawning quality and conditions, with the monitoring participants trained in advance. By the moment, the spawning quality and conditions data for the last 6 years has been accumulated.
- An agreement with Mondi Syktyvkar was reached to release young fish in Udora district as compensation for the damage caused to aquatic bio resources (including developing the plan of areas for fish release based on the expert opinion and local population interests).

**Detailed results:**

**4.1. To support development and start of implementation of the target interregional Mezen salmon preservation and restoration program initiated by the project (hereinafter referred to as the Program):**

- The layout for the guidelines for accounting of the Atlantic salmon redds in line with regional characteristics and Silver Taiga's experience was developed (Karelia Scientific Center of the Russian Academy of Science) – *December 2016*.
- A meeting of the working group on interregional program development was held, the project perspectives were outlined and the Foundation's activities related to evaluation of the up-to-date condition of the Atlantic salmon population in the Mezen were given a positive feedback.
- Primary analysis of the data obtained through annual expeditions aimed at the Atlantic salmon spawning quality was performed. The Working Group on Interregional program of the Atlantic salmon population conservation in the Mezen admitted the need in further monitoring activities. Significant linear correlation of water level and the number of salmon spawning nests was found at breeding areas in the upper reaches of the Mezen river – *October 2016*.
- A cooperation agreement on search for a legitimate way of fish resources control was made with the Udorachi Indigenous People Community – *September 2016*.

- Upon requests from public organizations and Udora residents a Round Table meeting on seasonal restriction of visits to the Udora complex reserve, which has Atlantic salmon breeding grounds in the Mezen river, was initiated (jointly with the Ministry of Natural Resources of the Komi Republic and PA Center of the Komi Republic). A decision on restricted visits of the reserve in the high season of spawning of the salmon was taken, a working group was arranged and the deadlines were set – *November 2016*.
- An item of the program – Optimization of fish protection activities in the Mezen river basin with the account of the Atlantic salmon migration and spawning. Analysis of capacities for fish protected area establishment – was developed – *September 2016*.
- Proposals on the change of the Fishing rules for the Northern Fishery Basin with account of the opinions of the local population and NGOs were developed and submitted to the Working group of the State Council of the Komi Republic on the Fishing rules amendment – *May 2016*.
- A report broadcast at the Komi State TV and Radio channel presented the interregional program and results of the annual salmon spawning quality monitoring at the Mezen – *October 2016*.

#### **4.2. To establish monitoring of fishery projects implemented on the Mezen river:**

- Theoretical and practical seminars on the monitoring methodology were conducted for the AgroUdora cooperative members. Monitoring logbooks were disseminated. The seminars were attended by 8 to 35 people, 6 logbooks were filed – *March-August 2016*.
- Programs on the Komi State TV and Radion channel about the necessity of the monitoring at fishery plots of the AgroUdora cooperative, the need for reclamation activities and challenges related to them – *February-October 2016*.
- Based on the results of the meetings with local users an assessment of catchment and protection of aquatic bioresources in Leshukonskoye district, Arkhangelsk region, was made. Problems related to unavailability of information about the Fishing Rules were identified. The local population complains about insufficient fishery inspectors – *February 2016*.
- A trip to Poland (Poznań) was arranged to obtain the experience of planning and implementation of fishery projects. The key findings were the following: fishery sites usually perform several functions for higher profitability – they are used for production, research, and recreation; there is a wide distribution of invader species which are both brought there intentionally and get into the river by accident, however, they affect negatively the environmental condition of water bodies; reproduction technologies, breeder stock care, quarantine and treatment activities are cutting-edge, which reduces risks and production costs significantly; fish production facilities growing fish for ponds, decoration, food or local fish to be released into the natural habitat are popular, that levels off the annual load on the fishery site and diversifies production. The experience obtained will be mentioned in the Foundation's recommendations for the Komi Republic and Arkhangelsk region.

#### **4.3. To proceed with the annual monitoring of quality of spawning and salmon spawning grounds:**

- A training workshop for the participants of the Atlantic salmon spawning quality monitoring was held to create awareness about the spawning details, types of redds and theory of the method – *September 2016*.
- Consulting was provided to stakeholders (entrepreneurs, local population, executive authorities) about the monitoring procedures at 6 settlements of the Leshukonskoye district, Arkhangelsk region – *March 2016*.
- A field expedition, aimed at the monitoring of the reproductive part of salmon population,



was held. 161 "hills" and 30 "pits" – the highest number for the 2011-2016 period – were detected – *September-October 2016*.

- Annual salmon monitoring data was prepared and submitted to Komirybvod, Ministry of Natural Resources of the Komi Republic – *October 2016*.
- A primary inspection of the salmon breeding area at the Nizhnyaya Puzla River was conducted. Benthos samples for estimation of the water course food capacity were collected. Bioindication methods helped to assess the environmental status of some salmon breeding areas. The quality of the environment was found to be clean/oligosaprobic. The food capacity of the stream was found to be high, zoobenthos biomass (key component of the young salmon nutrition in the river) is 4.5 g/m<sup>2</sup> in average – *October 2016*.

#### **4.4. To facilitate implementation of fish protection activities:**

- Information and consultation meetings with the local population in the settlements along the rivers Vashka and Mezen were held. The new Fishing Rules for the Northern Fishery Basin, as well as the role, rights and duties of the public inspectors were explained, some Fishing Rules violations were detected – *August 2016*.
- In cooperation with Komirybvod and Department of the Russian Fishery Agency in the Komi Republic, PA Center of the Komi Republic, and the local population expeditions and monitoring in the upper reaches of the Mezen River and its spawning tributaries were conducted. Direct and indirect indicators of poaching at the spawning grounds during the salmon spawning season have been detected. A breach of legislation in the field of aquatic biological resources protection was prevented – *September-October 2016*.

#### **4.5. To support projects on restoration of resident fish species:**

- Young stock of European grayling was released at fishery plots of the AgroUdora cooperative – *June 2016*.
- A workshop on project implementation and fund raising was conducted. 15 young people from Udora district, entrepreneurs and representatives of territorial self-governments took part in the workshop – *March 2016*.
- An application to include AgroUdora's fishery areas into the 2017 Reclamation Plan was submitted. As the Russian Federal Fisheries Agency changed its regulations, reclamation is possible at the expense of the leaseholder only – *August 2016*.

#### **4.6. To support fish resources protection activities conducted by the Fishery Supervision Institution (Rybnadzor) and Komirybvod and users' activities on restoration of non-migratory fish species:**

- Support of the Udora department of state control, supervision and protection of water biological resources in the organization of the salmon spawning grounds protection in the upper reaches of the Mezen and preventive measures against breach of legislation in the field of aquatic biological resources protection on the Vashka river were provided – *June 2016*.

**Note:** funds planned to support the Komi branch of the Federal Fishery Agency (Mosrybvod) in 2016 were not claimed.

**Cooperating organizations (in alphabetic order):**

- Administration of Leshukonskoye and Mezen districts of Arkhangelsk region
- Administration of Udora district
- Agricultural consumer cooperative “AgroUdora”
- Entrepreneurship – river stretches leaseholders
- Federal Institution of Water and Fishery Management (Komirybvod)
- Federal State Budgetary Institution “Sevrybvod”
- Institute of Biology of the Komi Scientific Center
- Ministry of Agriculture of the Republic of Komi
- Ministry of Natural Resources of the Republic of Komi
- State Aquatic Bioresources Inspection of the Komi Republic
- PA Center of the Komi Republic
- Udora district NGOs “Komi Voytyr” and “Udorachi”.

## **5. Evaluation of the long-term impact of forestry (logging) on water resources (A. Borovlev, Yu. Pautov)**

### **Objectives for 2014-2016:**

- 5.1. To analyze scientific data (first of all, from international sources) on forestry and logging impact on hydrological regime of rivers and catchment areas.
- 5.2. To evaluate influence of logging regime on state of rivers and streams based on comparisons of rivers covered by monitoring.
- 5.3. To evaluate influence of logging on state of small wetlands along streams and on flooded part of river valley.
- 5.4. To develop recommendations for the logging industry and forestry planners on how to avoid or reduce negative influence of logging on streams and rivers.

### **Planned activity for 2016:**

#### **5.1. To analyze scientific data (first of all, from international sources) on forestry and logging impact on hydrological regime of rivers and catchment areas.**

- Analyses of the correlations of the river Mezen run-off hydrological characteristics on the hydrological stations Makaryb and Bolshaya Pyssa with the change of the climatic indicators and change of the felling areas in the Mezen basin during the period from 1970 to 2013 – *March 2016*.
- Preparation of the article on the long-term extensive clear felling impact on the Mezen river hydrological regime for the Monograph "Contemporary condition and prospects for the sustainable management of the Mezen river resources» in partnership with the Institute of Biology of the Komi Scientific Center – *March 2016*.

#### **5.2. To evaluate influence of logging regime on state of rivers and streams based on comparisons of rivers covered by monitoring.**

- Comparative assessment of the results of the cameral treatment of the benthos samples and water quality in the Udora district rivers – *March 2016*.
- Preparation of the article "Bioindication of the clear felling impact on the water quality in the rivers Lower Puzla and Kuzhim in the Mezen river basin" for the Monograph "Contemporary condition and prospects for the sustainable management of the Mezen river resources» in partnership with the Institute of Biology of the Komi Scientific Center – *March 2016*.
- Comparative assessment of the long-term logging impact on the intensity, volume, and duration of the spring flood, summer and winter low water, based on the analysis of the hydrological changes on the Vychegda basin rivers: the Voch river (hydrological station in the village Verkhnyaya Voch) and the Prupt river (hydrological station in the village Klimovo) in partnership with the Meteorological Center of the Komi Republic – *September 2016*.
- Organization and conducting of the expeditionary works for the assessment of erosive processes after logging on the watersheds of the small watercourses, as well as zoobenthos sampling in the rivers Voch and Prupt – *May-September 2016*.

#### **5.3. To evaluate influence of logging on state of small wetlands along streams and on flooded part of river valley.**

- Study of the soil organic and mineral parts export and changes in the channel and floodplain processes of the small watercourses and streams after logging on the Sedka river watershed, using the UAV technology to get high detail images, in partnership with the soil science department and laboratory of computer systems, technologies and modeling of the Institute of Biology of the Komi Scientific Center – *May-September 2016*.
- Preparation of mosaics of the space images dated 1985 and 2015 to assess the impact of clear felling and subsequent restoration successions on the watersheds of the "pilot" rivers in the Upper Vychegda basin, in partnership with the laboratory of computer systems, technologies and modeling of the Institute of Biology of the Komi Scientific Center – *throughout the year*.
- Development of a digital model of the small watercourses under study, based on the digital elevation model (DEM) data, which allows to estimate the scope and nature of the run-off processes – *February-May 2016*.

### **Main achievements in 2016 include:**

1. The materials of the research conducted as part of the subproject were used to *Recommendations on the Landscape and Environmental Planning of the Forest Use with Account of the FSC Certification Requirements*.

2. Based on the analysis of the scientific publications related to assessing logging impact on the watersheds, the method of “representative elementary slopes” (McDowell, Biggs, 2015) and water turbidity analysis method (Kononov et al., 2002) were selected. Most other methods require costly tools and long-term monitoring at specially equipped watersheds, so they are of little practical use for the subproject.
3. A conclusion was made that the labour-intensive method of bioindication with zoobenthos samples is not reliable enough to assess long-term logging impact on water quality in water courses, so it cannot be indicative for chemical pollution measuring (waste water, petrochemicals, brine water...). Comparative assessment of water quality bioindication based on zoobenthos sample analysis in the Mezen river tributaries – the Kuzhim (53% of watershed is logged) and the Nizhnyaya Puzla (10 % of watershed is logged), as well as express tests of benthos samples from the Vycheгда tributaries – the Prupt and the Voch – showed no significant difference between groups of benthos at the streams under comparison.
4. The water turbidity analysis method is quite reliable for mid-term and short-term logging impact assessment. The test for suspended particles in water samples from the “pilot” watersheds showed direct correlation between the logged area and the amount of suspended particles in water samples, see the table below:

River watershed area	Prupt	Voch
% of 2006 – 2016 logged area with regard to the total watershed area	2.6	7.9
Average content of solids, g/l	0.09	0.19

The method is also reliable to demonstrate local spots of sediment runoff to streams and rivers, for instance, if the requirements to bridge crossing and culvert design in the process of forest road construction are violated, water erosion spots on slopes after clear-cutting, logging at water and bank protection forest strips along water courses, etc.

5. A WEB-GIS<sup>1</sup> project based on the results of the survey among Udora old-time residents about the changes in water body condition and visualizing long-term impact of “Bulgarian harvesters” logging activities of 1970-90 on the hydrology of the Mezen catchment basin was developed and made publicly accessible. The most frequent deficiencies are changed flood patterns (12.8 %), lower level of ground water (12.8 %), sand drift in river and stream beds (14.7 %) and drying of minor waterways (15.1 %). An article for the *Mezen: River Resource Sustainable Management Issues* book was prepared on the basis of the research findings.

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<sup>1</sup> [goo.gl/WktIvj](http://goo.gl/WktIvj)

## **Detailed results:**

### **5.1. Analysis of scientific literature.**

- During the year, the available scientific research data base was extended with up-to-date scientific works related to the assessment of forest ecosystem transformation and its further impact on aquatic resources. Much attention was paid to foreign publications describing both theoretic principles of the issue, and the methods for practical assessment of the impact. The focus was on the foreign concept of “representative elementary slopes” which integrates the total data on the forest ecosystem transformation (logging dynamics), and meteorology

and hydrology fluctuations. The method of suspended particles through sampling from pilot water bodies followed by filtration to obtain dry matter of the solid runoff was tested.

- Correlation of statistical data for hydrologic and climatic fluctuations was analyzed in line with the estimation of watershed logging dynamics. Interconnection between the fluctuations of runoff curve, summer steady low water level and logging dynamics at the Mezen watershed area is clear.
- The *Long-Term Impact of Extensive Clear Cutting on Changes in Hydrologic Regimen of the Mezen* article was prepared for the *Mezen: River Resource Sustainable Management Issues* book.

## **5.2. Assessing logging impact on the rivers and streams based on comparison of watersheds with differing logging patterns.**

- Based on the samples collected comparative assessment of the indicative parameters (EPT Index, Trent Biotic Index, Biological Monitoring Working Party, Dip/N, Ch/N, oligogenic index of Parele D1) was conducted. The results of the study showed that in all samples collected from different catchment areas with different logging area patterns (Kuzhim – 53% of logged area in the watershed, Nizhnyaya Puzla – 10%) the total benthos was dominated by larvae of amphibiotic insects in terms of quantity, at sandy soils they were accompanied by crustaceans, and the total biomass had an equal part of insects and mollusks, or sometimes worms. No significant difference between the groups of benthos organisms at the watersheds under comparison was found.
- The *Bioindication of Clear Felling Impact on Water Quality in the Nizhnyaya Puzla and Kuzhim* article was prepared for the *Mezen: River Resource Sustainable Management Issues* book jointly with M.A. Baturina (Institute of Biology of the Komi Scientific Center).
- Comparative assessment of long-term logging impact on intensity, flow and duration of spring flood, summer and winter steady low water level was conducted based on the hydrological measurement data for the Vychegda basin rivers: the Voch (gauging station in the village of Verkhnyaya Voch) and the Prupt (gauging station in Klimovo) jointly with the Meteorological Office of the Komi Republic – *December 2016*.
- As part of expeditions to the Vychegda tributaries – the Prupt and Voch – samples were collected to assess the suspended particles. Reliable correlation between the logging area and the amount of solids was displayed. Express tests of benthos organisms from watersheds under study were conducted with the method of Poznan University of Life Sciences. No significant difference in zoobenthos samples from the water bodies under study was found – Woodiwiss biotic index showed that the environment quality was the same (beta-mesosaprobic) at all sample collection points.

## **5.3. Assessment of logging impact on minor water streams and bottomland plots of rivers and streams.**

- The water turbidity analysis method was tested at the studied streams with watersheds affected by logging. 12 samples were assessed and showed the correlation between the amount of solid runoff, the length of the water course and how long ago logging activities were performed. Due to technical problems images of pilot watersheds in high detail with pilotless aircraft were not taken.
- The 1985-2015 multi-temporal composite of images was prepared and analyzed to assess the impact of clear cutting and subsequent progressive succession at the “pilot” river watersheds in the Verkhnyaya Vychegda basin.
- The “representative elementary slopes” model development is at the completion stage. The required statistic parameters (digital model of the relief, analysis of climatic fluctuations and ecosystem transformation dynamics) were estimated. The final stage of the work is to enter hydrologic parameters of the watersheds under study.

**5.4. In addition:**

- Heat maps showing fluctuations of climatic parameters (temperature, precipitation) were generated based on the data from meteorological stations located near the catchment basins under study. Heat maps display the increase of average decade temperatures and precipitation total over the last 30 years, which also influence directly the fluctuations of hydrologic parameters of the catchment basins analyzed.
- Statistical assessment of the dynamics of logging areas in the basins of the Mezen and other minor rivers in the upper reaches of the Vychegda (the Prupt, Voch, Lokchim, Lopyu) was conducted on the basis of the analysis of multi-temporal composite of images for the period from 1980 up to now with various ERS materials. The materials were further used for statistical analysis and detection of correlations with fluctuations of the hydrological parameters of the mentioned water streams. Sharp reduction of logging area at all catchment basins under analysis was demonstrated after the forestry sector crisis in 1995, as well as due to depletion of accessible forest resources:

Logging dynamics at watershed basins under study  
(%% of the watershed area)

Period of Time	Mezen Basin in Udora District	Prupt Basin	Voch Basin	Lopyu Basin	Lokchim Basin
till 1980	7,1	25,3	8,3	18,6	25,2
1980 – 1985	7,5				
1985 – 1990	6,8	4,8	3,5	3,5	14,3
1990 – 1995	1,8				
1995 – 2000	1,3	2,5	1,9	1,9	3,4
2000 – 2005	2,1				
2005 – 2015	1,0	2,6	7,9	0,9	4,4

- Study of the experience and methods for anthropogenic transformation of forest and aquatic ecosystems in Poznan University of Life Sciences (Poland).
- Intermediary results of the *Assessing Long-Term Logging Impact on Aquatic Resources* project were presented at the two All-Russia conferences: April 2016 – Environment of the Native Land: Problems and Solutions, Kirov; May 2016 – Forests of Russia, St. Petersburg. Research papers were published based on the conference results.

**Cooperating organizations (in alphabetic order):**

- Federal Institution of Water and Fishery Management (Komirbyvod)
- Institute of Biology of the Komi Scientific Center
- Meteorological center of the Komi Republic
- Ministry of Natural Resources of the Komi Republic
- Non-profit partnership “Transparent World”, Moscow
- Poznan University named after Adam Mitskevich, Poland
- Poznan University of Natural Sciences, Poland
- State University in St.Petersburg
- Swedish University of Agricultural Sciences, Sweden
- Syktyvkar State University
- Tekhkarta – cartographic company, Syktyvkar

## 6. Support of the “Boreal Forest Platform” of WWF Russia in the framework of Mondi-Group – WWF International alliance (Yu. Pautov)

### **Planned activity for 2016:**

- 6.1. Preparation of the proposals on the landscape planning of the intensive forestry activities on the landscape test site near Syktyvkar jointly with the Wood supply department of Mondi Syktyvkar, Lesnaya Alternativa (provided that the forest fund in the Syktyvkar forestry units of the Komi Republic will be rented out to Mondi Syktyvkar) – *throughout the year*.
- 6.2. Development of a database of the intensive forestry test sites in the Komi Republic, location of the database on a publicly available WEB-service jointly with Mondi Syktyvkar, Tekhkarta, Lesnaya Alternativa – *throughout the year*.
- 6.3. Participation in the "Boreal Forest platform" educational seminars, organized by WWF Russia – *throughout the year*.

### **Main achievements in 2016 include:**

- A reconnaissance study of Intensive Forestry test grounds was arranged at Mondi Syktyvkar’s lease in Koygorodok and Sysola forestry units jointly with wood supply department of Mondi Syktyvkar (V. Chuprov). A publicly available data base of Intensive Forestry test grounds is planned to be developed in 2017 on the new platform of the website [www.silvertaiga.ru](http://www.silvertaiga.ru) after additional consultations with Tekhkarta and wood supply department of Mondi Syktyvkar.
- **Note:** Drafting of quotations for landscape planning activities as part of the Intensive Forestry development at the landscape plot in Syktyvdin and Sysola forestry units was postponed to 2017, as in 2016 forest surveying was held at new plots provided to Mondi Syktyvkar for lease.
- **Note:** It turned out impossible to take part in the educational seminars of the Boreal Forest Platform facilitated by WWF Russia in Karelia and Arkhangelsk region in 2016 due to the foundation’s staff being occupied with other events.

### **Cooperating organizations (in alphabetic order):**

- Lesnaya Alternativa company, Leningrad region
- Ministry of Natural Resources of the Komi Republic
- Mondi Syktyvkar
- Priluzje Forestry Unit
- Syktyvkar Forest Institute
- Tekhkarta – cartographic company, Syktyvkar
- WWF Russia.

## 7. Consultations and educational seminars (Yu. Pautov)

### Objectives:

- Forest stakeholders have access to the consultations on certification and sustainable forest management.
- Forest stakeholders are getting new knowledge and experience, based on the organized educational seminars and demonstration routes in Komi Model Forest.

### Planned activity for 2016:

- 7.1. Consultations on FSC certification and other issues related to the sustainable forest management for logging companies, Forestry Service, and audit companies (on request) – *throughout the year*.
- 7.2. Organization and holding of two advanced trainings on social aspects of FSC-certification for FSC-consultants (jointly with FSC Russia and WWF Russia) – *January 2016*.
- 7.3. Organization and holding of introduction courses for the students of the Syktyvkar Forest Institute on the topic “History of the forest use in the Komi Republic. Natural forest dynamics and biodiversity of the taiga forests” in Komi Model Forest (on request) – *September 2016*.
- 7.4. Organization and holding of a field seminar on natural forest dynamics and biodiversity of taiga forests for the heads of the logging branches of Mondi Syktyvkar to the Pechoro-Ilych Reserve (on request) – *July 2016*.
- 7.5. Organization and holding of a field seminar on fulfillment of the ecological requirements of FSC-certification for the heads of the logging branches of SevLesPil company (on request) – *May 2016*.
- 7.6. Other seminars on request.

### Detailed results:

- 7.1.12. Consulting and informational sessions were conducted for audit companies and ASI with FSC certificate holders from the Komi Republic and adjacent regions involved, with regard to FSC certification compliance – *throughout the year*.
- 7.2. Two advanced trainings on social aspects of certification were conducted for FSC consultants (as requested by FSC Russia and WWF Russia) – 36 participants – *January 2016*.
- 7.3.8. Introductory field courses for Syktyvkar Forest Institute students devoted to the topic of *History of Forest Management in the Komi Republic. Natural Forest Dynamics and Biodiversity of Taiga* were conducted (upon the Institute’s request) in Komi Model Forest - 180 participants – *September 2016*.
- 7.4. A field workshop on natural forest dynamics and biodiversity of taiga was conducted for the management of Mondi Syktyvkar’s logging divisions was arranged in Pechora-Ilych Nature Reserve – 12 participants – *July 2016*.
- 7.5. A field workshop on compliance with environmental FSC requirements was conducted for the management of SevLesPil’s logging divisions (upon their request) - 7 participants – *May 2016*.
- 7.6. Three field workshops on landscape and environmental planning and biodiversity conservation was conducted for the management of Mondi Syktyvkar’s logging divisions in Priluzye, Koygorodok and Sysola districts – 116 participants – harvester and forwarder operators – *September-October 2016*.
- 7.7. A review of existing public platforms related to environmental protection and natural resource management in the Komi Republic was conducted (upon the request of WWF Russia). A working meeting with environmental NGOs was arranged as part of the survey – *May-June 2016*.
- 7.8. A review of the situation related to non-wood forest resources as sources of income for the residents of the Komi Republic (upon the request of WWF Russia) – *May-June 2016*.



**Cooperating organizations (in alphabetic order):**

- Audit companies
- FSC Russia
- Ministry of Natural Resources of the Komi Republic
- Mondi Syktyvkar
- SevLesPil logging company
- Syktyvkar Forest Institute
- Syktyvkar State University
- WWF Russia.

## **Supplementary activity (in case additional financing is involved)**

### **8. Regional program of the Komi Model Forest development in the Komi Republic (Yu. Pautov)**

#### **Objectives:**

- 8.1. Support of Komi Model Forest development as an important regional and international initiative on the sustainable forest management.
- 8.2. Usage of Komi Model Forest educational potential.

#### **Planned activity for 2016:**

- 8.1. Drafting of a report and participation in the roundtable discussion with regard to Model Forests issues during the international conference (4th Nordic Conference for Rural Research Nordic Ruralities: Crisis and Resilience, University of Akureyri, Iceland) – *May 2016*.
- 8.2. Development of an interactive training online-courses concept on sustainable forest management with the use of video materials on the demonstration routes in Komi Model Forest (together with WWF Russia) – *throughout the year*.
- 8.3. Preparation of a pilot video course «Natural Forest Dynamics of taiga ecosystems» on the demonstration route in Komi Model Forest – *July 2016*.
- 8.4. Organization of an educational course on sustainable forest management for the specialists of the Ministry of Natural Resources of the Komi Republic and forestry units of the Komi Republic on the demonstration routes in Komi Model Forest – *September 2016*.
- 8.5. Support of the Public Forest Council activity in the Priluzje district of Komi – *throughout the year*.

#### **Detailed results:**

- 8.1. The presentation *Initiative of the «social forests» establishment in the Komi Republic (Russia) to support the traditional nature use of Komi people* was prepared and presented at the 4th Nordic Conference for Rural Research Nordic Ruralities: Crisis and Resilience, University of Akureyri, Iceland – *May 2016*.
- 8.2. Participation in the Round Table meeting on Circumpolar Model Forest Initiative development with representatives from Canada, Scandinavia, Russia – *May 2016*.
- 8.3. A field trip for the International forest school of Syktyvkar Forest Institute was conducted in Komi Model Forest (in partnership with the Institute) – *September 2016*.
- 8.4. Skype interview with the Secretariat (Christa Mooney) of the International Model Forest Network (IMFN) with regard to assessment of meeting the Criteria and Indicators of IMFN of Komi by Komi Model Forest – *November 2016*.

#### **Cooperating organizations (in alphabetic order):**

- FSC Russia
- Luzales logging company
- Ministry of Natural Resources of the Komi Republic
- Mondi Syktyvkar
- Priluzje forestry unit
- Public Forest Council of the Priluzje district of Komi
- Syktyvkar Forest Institute
- WWF Russia.

## **9. Forest communities and natural resource management. Interaction of forest communities with big wood businesses (V. Semyashkina)**

### **Objectives:**

- 9.1. Preserving the possibilities of traditional natural resources use by the local population in remote forest villages.
- 9.2. Development of a policy of forest business social responsibility in respect of the forest communities.
- 9.3. Development of Forest Dialogue as a form of democratic debates on natural resources management.

### **Planned activity for 2016:**

- 9.4. Monitoring of the logging companies' impact on the possibility of traditional nature use by the local population in remote forest villages (jointly with the Public Forest Councils of Priluz'e and Kortkeros districts, Udora district NGO «Udorachi», representative offices of the Interregional Public Movement "Komi Voytyr" in forest districts) – *throughout the year*.
- 9.5. Facilitating awareness of the local population and building up a dialogue between the local population of the forest districts and the forest business:
  - support of publication of the Forest Council newspaper in Priluzye district as the source of information and a platform for discussion of the forest use issues – *throughout the year*;
  - consulting of the interested parties on the social aspects of the FSC-certification – *on request and when necessary*.

### **Main achievements in 2016 include:**

1. Introduction of recommendations to the Governor and Government of the Komi Republic into the final reports of the XI Komi People Conference "to introduce in terms of nature management control the notion "*social forests*", and "to improve the forest use mechanism... and control in this field for the interests of indigenous people, in particular,... by means of establishment of public forest councils".
2. Meetings and consulting sessions for local residents in Priluzye and Kortkeros districts as part of the training course on social aspects of forest certification facilitated by the Foundation for FSC certification consultants.
3. Distribution of the Silver Taiga Foundation's experience in cooperation with forest communities among stakeholders of forest relations in other regions and local communities.

### **Detailed results:**

- Participation in the XI Komi People Conference (over 200 delegates from seven regions of Russia) and presentation at the section *Nature Management and Environmental protection at the Traditional Komi Resident Area*. As a result, the recommendations of the Silver Taiga Foundation on "social forests" and "public forest councils" were included into the final reports of the conference – *February 2016*.
- Monitoring of the logging companies' activity impact on the social and economic environment in rural districts was not conducted systematically *due to absence of funding for this area of focus*. At the same time, meetings of FSC consultants were arranged with local residents as part of the training course on social aspects of forest certification facilitated by the Foundation, such meetings included interviews in the settlements of Keros (the village of Keros, Ezhol and Laborom villages, Uryel settlement) and Spasporub (the village of Spasporub, Porub-Kepovskaya, Urnyshevskaya and other villages) in Kortkeros and Priluzye districts of Komi – *January 2016*.
- A representative of the public forest council from Keros was invited to participate in the workshop on the results of field works under the Transparent Forest Project – *May 2016*.
- The Foundation's experience in support of residents from "forest villages" was presented in the report *Role of Non-Woody Forest Resources in Local Residents' Sustenance*

*Maintenance* at the international *Forest for the Future Forum* in Ustyansky district, Arkhangelsk region – *March 2016*.

- The Foundation's experience in allocation, mapping and preservation of traditional forest use areas (hunting grounds, places for mushroom and berry collection) from logging activities with local residents was presented at the workshop for indigenous young people held in Moscow by the Center of Support to Small-Numbered Indigenous Peoples of the North, Siberia and Far East – *May 2016*.
- Publication of *the Forest Council newspaper* in Priluzye district was suspended *due to no funding and reorganization of the Forest Committee of the Komi Republic (in previous years the edition was partially funded through forestry units)*.

**Cooperating organizations (in alphabetic order):**

- Administrations of “forest” districts and rural settlements of the Komi Republic
- Forestry Units of the Komi Republic
- FSC Russia
- Interregional Public Movement “Komi Voytyr” (NGO)
- Luzales logging company
- Mondi Syktyvkar
- Public Forest Councils
- ReSURS NGO, Arkhangelsk region
- Udora district NGO “Udorachi”
- WWF Russia.

## 10. Initiation of volunteer movement (A. Shuktomova)

### **Objective:**

Volunteers' involvement into the Silver Taiga Foundation projects implementation, as well as dissemination of the information on the nature protection and social problems of sustainable development within the frameworks of the Foundation activity.

### **Planned activity for 2016:**

- 10.1. Attraction of the initiative and motivated people for extension of the volunteer movement (up to 10-15 people) – *throughout the year.*
- 10.2. Organization of the field seminar on the topic “History of the forest use in the Komi Republic. Natural dynamics and biodiversity of the taiga forest” for the volunteers in Komi Model Forest – *May 2016.*
- 10.3. Support and popularization of the “Silver Taiga Foundation volunteers” group in the social network “Vkontakte” ([vk.com/silvertaiga](http://vk.com/silvertaiga)) – *throughout the year.*
- 10.4. Support of the section devoted to the volunteers movement on the Foundation website [www.silvertaiga.ru](http://www.silvertaiga.ru) – *throughout the year.*
- 10.5. Organization of the volunteers for the support in the implementation of the Foundation's objectives – *throughout the year.*

### **Main achievements in 2016 include:**

- The volunteers have been involved into many activities of the foundation.
- 12 new volunteers including 4 schoolchildren and 2 students from Udora district of Komi have been involved into different events of the foundation.
- Young people are interested in the foundation's activities.
- The number of participants of Silver Taiga Foundation volunteers group in the social network “Vkontakte” ([vk.com/silvertaiga](http://vk.com/silvertaiga)) has increased by 70 people, more than 50% of them are young people at the age of 24 – 30 years old.

### **Detailed results:**

- Volunteers' participation in the round table meeting *Sustainable Fishery Resource Management in Cooperation with the Local Population: Model River Mezen* in Leshukonskoye district, Arkhangelsk region – *February 2016.*
- A skype meeting with volunteers – *March 2016.*
- A volunteer's participation in the trip to Priluzye district to study erosion processes jointly with the Institute of Biology of the Komi Scientific Center – *May 2016.*
- A volunteer's participation in preparation for the environmental expedition (survey of the area, checking condition of roads and bridges) to the Osa river, Udora district of Komi – *June 2016.*
- Volunteers involved for the expedition with the purpose to inspect the potential PA Osa Complex Reserve, Udora district of Komi – *June 2016.*
- Volunteers involved into preparation of demonstration sites for field training course in landscape and environmental planning of forest use in Priluzye and Koygorodok districts – *August 2016.*
- Volunteers' participation in the activities of the propaganda team (preparation of the agenda and trips to rural settlements of Udora district) – *August 2016.*
- Maintaining and updating the webpage about the Foundation's activities with regard to volunteering at [www.silvertaiga.ru](http://www.silvertaiga.ru) and the Foundation Volunteers' page at the social network ([vk.com/silvertaiga](http://vk.com/silvertaiga)) – *throughout the year.*

### **Cooperating organizations (in alphabetic order):**

- Syktyvkar Forest Institute
- Syktyvkar State University
- Udora centralized library system
- Usogorsk Children's Activity Center.

## **11. Support of FSC certification in Russia (Yu. Pautov)**

### **Objective:**

Dissemination of Silver Taiga experience in the FSC certification development in the Komi Republic, ensuring the accessibility of this experience for FSC certification support in Russia.

### **Planned activity for 2016:**

- 11.1. Governing of the FSC Russia Coordination Council's activities (Yu. Pautov) – *throughout the year.*
- 11.2. Organization and holding of a report-and-reelection conference of FSC Russia, report on the activities of the FSC Russia Coordination Council for the period of 2013-2016 years (Yu. Pautov) – *April 2016.*
- 11.3. Participation in a field-testing of the Transparent Forest Project in Udora district of the Komi Republic (jointly with Mondi Syktyvkar, FSC Russia and the European Space Agency (N. Shuktomov and A. Borovlev) – *April 2016.*
- 11.4. Participation in an advanced ecological training for the FSC-consultants in the Archangelsk region (N. Shuktomov and N. Shilov) – *July 2016.*

### **Main achievements in 2016 include:**

- 11.1. Managing the activity of the FSC Russia Coordination Council in the period from January to April 2016 - Yu. Pautov. V.Semyashkina was elected as a member of the FSC Russia Coordination Council (of the social chamber) at FSC Russia's election meeting – *April 2016.*
- 11.2. Organization and arrangement of FSC Russia's election meeting, report on the activity of the FSC Russia Coordination Council in 2013-2016 (Yu. Pautov) – *April 2016.*
- 11.3. Participation in the field tests and kick-off workshop for the Transparent Forest Project developed by the European Space Agency under the request of FSC International in Udora district of Komi jointly with the certification department of Mondi Syktyvkar, FSC Russia, Forest Certification and Tekhkarta – *April 2016.*
- 11.4. Participation in the advanced environmental training course for FSC consultants in Arkhangelsk region (N. Shuktomov, N. Shilov) – *July 2016.*

### **Cooperating organizations (in alphabetic order):**

- FSC Russia
- Mondi Syktyvkar
- WWF Russia.