Seminar

“Luga River: ecological state and ways to improve it”

November 21, 2013, the city of Luga

Modern aqua biological condition of the middle Luga River and the lower and middle Saba and Yaschera rivers and recommendations to improve aqua biological condition of these rivers in the nearest future and in the period up to 2020

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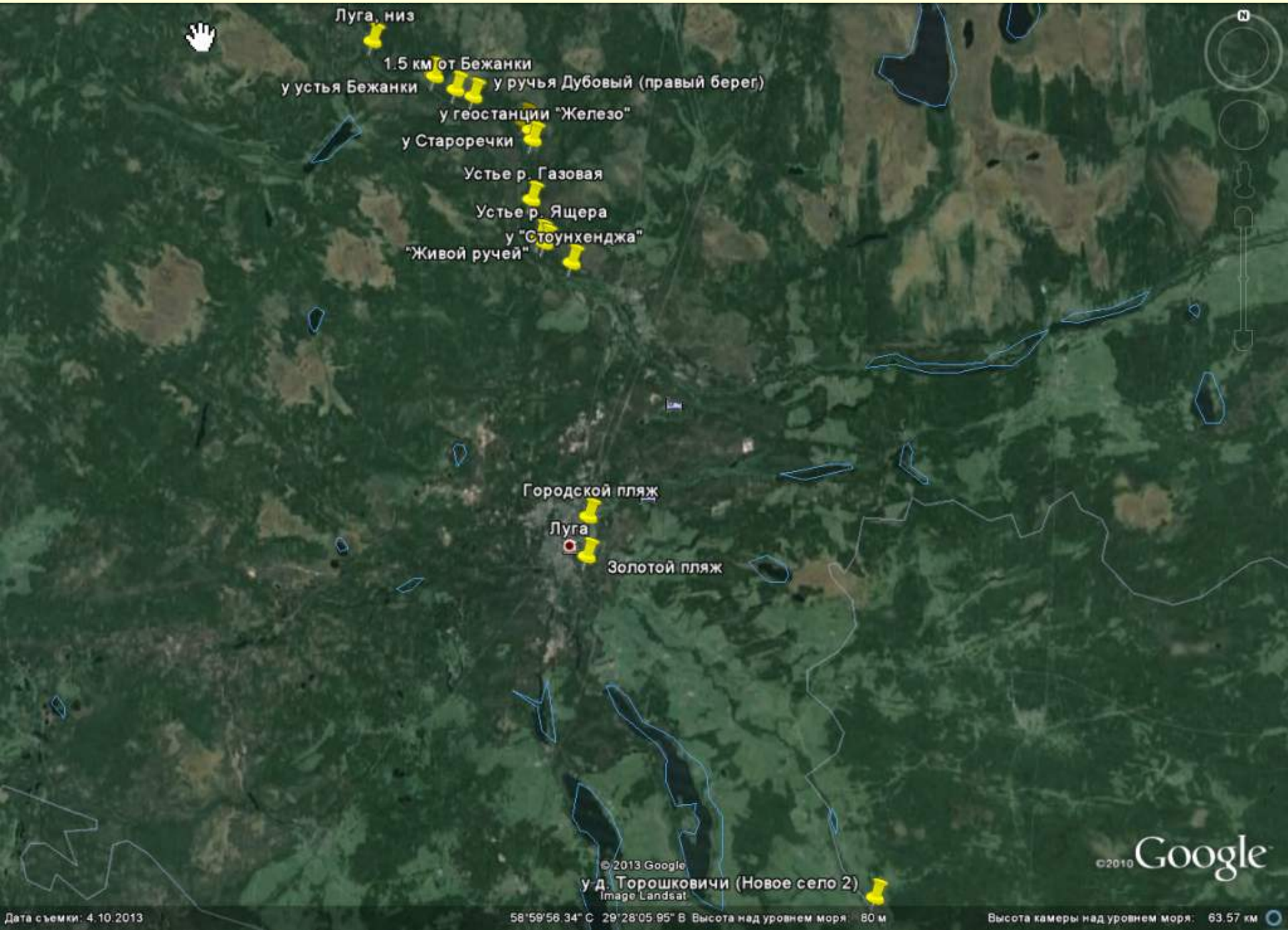
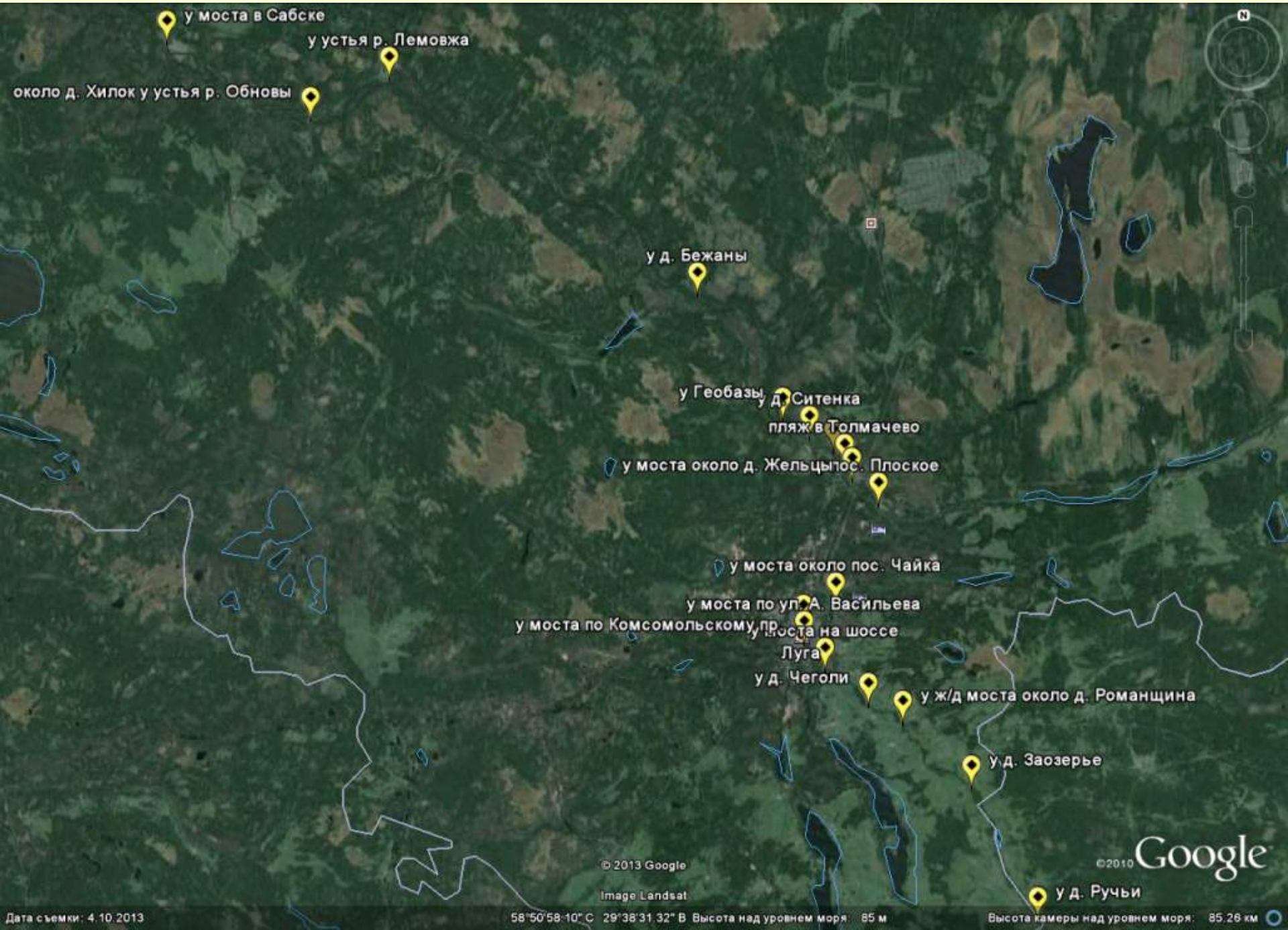
- During 6 planned and 3 over the plan field trips it was found that the greatest number of species of free-living Metazoa and macrophytes is confined to the middle flow of river Luga.
- In the lower and middle flow of river Saba number of these species is some lower.
- In the lower and middle reaches flow of river Yaschera the number of species was the least.
- If we take the number of species in the middle flow of river Luga as 100%, then in river Saba it is represented about 90-70% of species depending on the group, and in river Yaschera – 85-50% depending on the group.
- In spring of 2013 there were 3 planned field trips, in summer – 2, and in autumn – 1. Work was on 18 basic and several additional sampling locations.
- On the web page of the Laboratory of Brackish Water Hydrobiology ZIN RAS (http://www.zin.ru/labs/brackish/presentations.html) there are 12 presentations relating directly fieldwork and related activities.

1. Cruise on Luga River made on preparation of Project SE717, September, 2011. http://www.zin.ru/labs/brackish/presentations/Luga_2011.pdf
2. Mission to Finland June 17-20, 2013. http://www.zin.ru/labs/brackish/presentations/Finland_June_17-20_2013.pdf
3. Project SE 717 and its significance for the catchment area of Gulf of Finland. 2013. http://www.zin.ru/labs/brackish/presentations/BSD_2013.pdf
4. Description of video filmed material during one summer and one autumn fieldtrips of experts and volunteers of Aqua biological Scientific-Research unit of Project SE717. http://www.zin.ru/labs/brackish/presentations/Description_of_video_filming.pdf
5. Free of charge field trips made by the Head of aqua biological scientific research unit (N.V. Aladin). Project SE717, 2013. http://www.zin.ru/labs/brackish/presentations/Luga_Gruzinka_2013.pdf
6. Field trips of experts and volunteers of Aqua biological Scientific-Research unit of Project SE717 spring-autumn 2013. http://www.zin.ru/labs/brackish/presentations/Luga_2013.pdf
7. Sampling stations in river Luga that was visited during field trips of experts and volunteers of Aqua biological Scientific-Research unit of Project SE717 spring-autumn 2013. http://www.zin.ru/labs/brackish/presentations/Luga_sampling_stations_2013.pdf
8. Sampling stations in river Saba that was visited during field trips of experts and volunteers of Aqua biological Scientific-Research unit of Project SE717 spring-autumn 2013. http://www.zin.ru/labs/brackish/presentations/Saba_sampling_stations_2013.pdf
9. Sampling stations in river Yashera that was visited during field trips of experts and volunteers of Aqua biological Scientific-Research unit of Project SE717 spring-autumn 2013. http://www.zin.ru/labs/brackish/presentations/Yaschera_sampling_stations_2013.pdf
10. Structure, Terms of References, duties and Curriculum Vitae of experts and volunteers of aqua-biological and scientific-research unit of Project SE717. http://www.zin.ru/labs/brackish/presentations/Structure_SE717.pdf
11. VI Nevsky International Ecological Congress May 21-22, 2013, St.-Petersburg. http://www.zin.ru/labs/brackish/presentations/VI_Nevsky_EcoCongress.pdf
12. Baltic Sea Forum St-Petersburg April 5-6, 2013. http://www.zin.ru/labs/brackish/presentations/Baltic_Sea_Forum.pdf

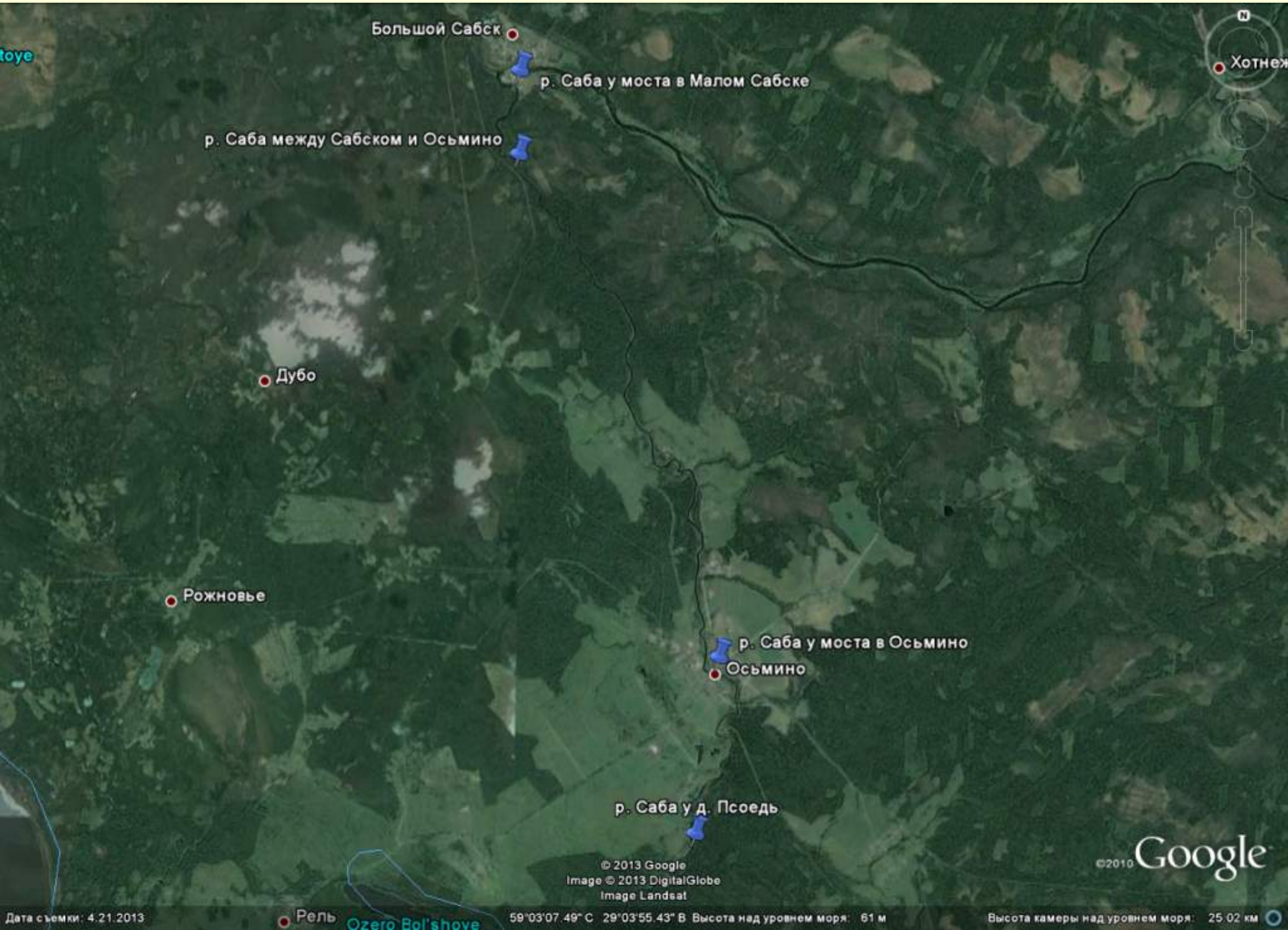
Luga river, basic stations



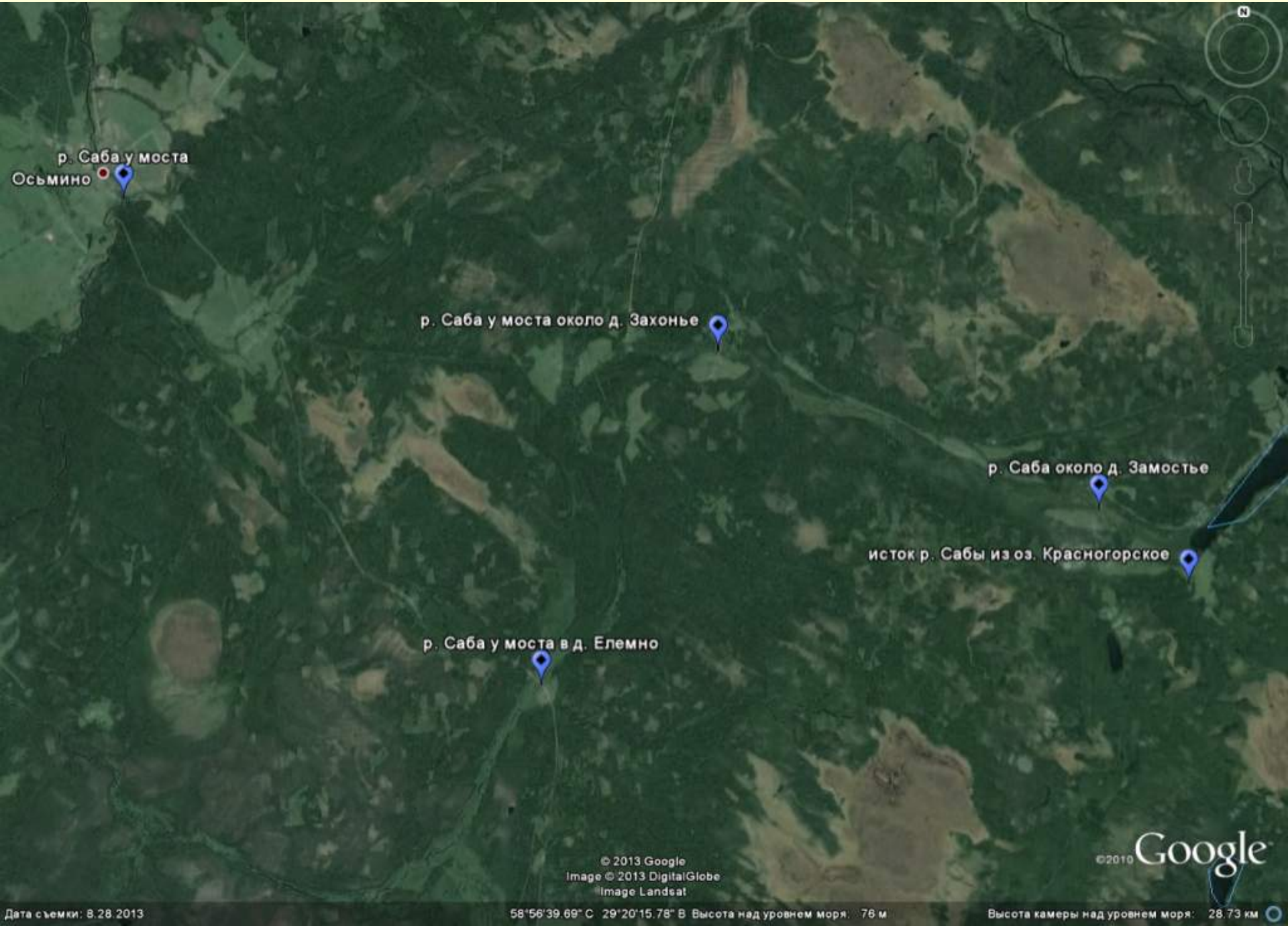
Luga river, additional stations



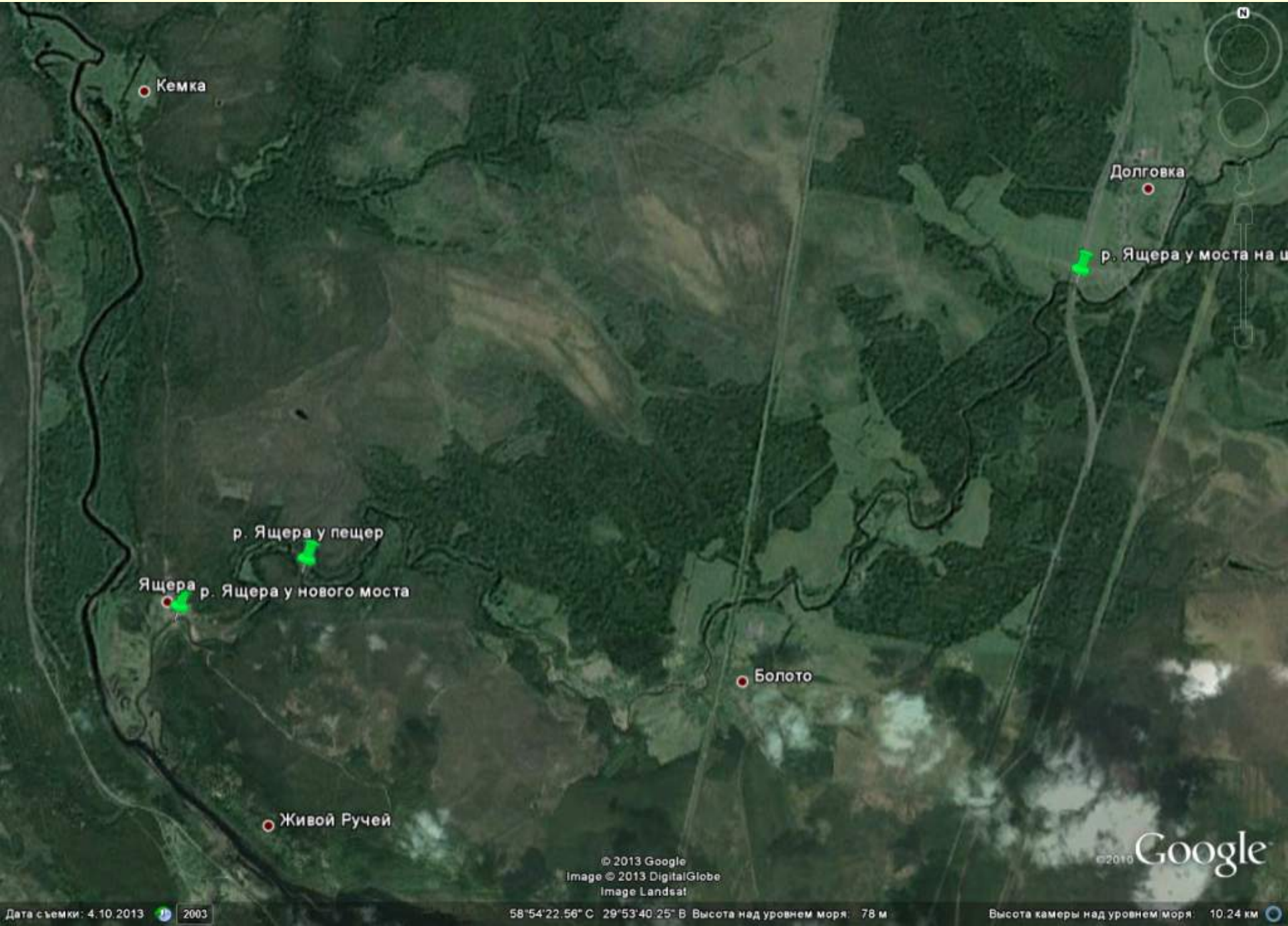
Saba river, basic stations



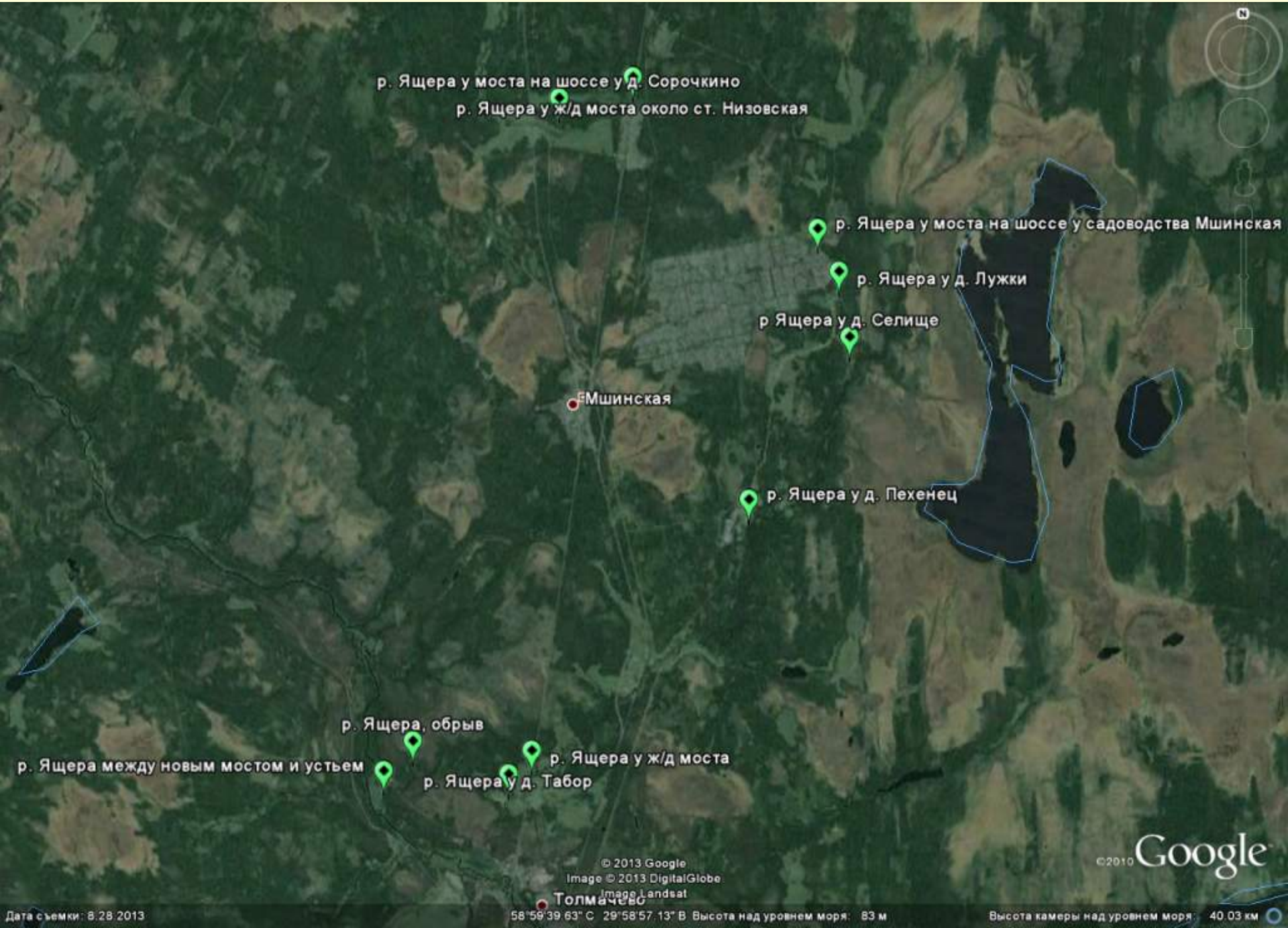
Saba river, additional stations



Yaschera river, basic stations



Yaschera river, additional stations



- During planned field trips it was made inventory of macrophytes, zooplankton, zoobenthos, cyclostomes, fish, wading birds and vertebrates.
- Spoke before me colleagues from our unit – T.A. ASANOVA, T.V. NIKITINA and L.V. ZHIAKOVA both experts and volunteers have shown convincingly that in the surveyed areas of the three rivers catastrophically low biodiversity is not observed. It is high enough.
- Besides, it is also noted that the bioresource potential apparently meets standards for streams of Leningrad region. More precisely this can be said for the next year after the quantitative researches on these three rivers.

- As mentioned above 6 planned field trips were supplemented with 3 unplanned during which it was used not traditional plankton nets and bottom samplers but dredges, traps for fish and crayfish and direct diving observation.
- These 3 field trips not only confirmed the high biodiversity of three rivers, but also significantly expanded the list of species of planktonic and benthic Metazoa.
- As you know, traditional plankton nets and bottom samplers collect not all invertebrates. Many of them simply escape from. Just a few examples. It is well known skaters (Gerris sp.), but catching them with plankton net is possible only by accident. Rarely get into these nets aquatic mites, spiders, beetles, bugs, etc. Also in the bottom samplers never get crayfish. It is needed to catch them with special traps.
- These observations have increased species lists almost by half.

To summarize field research in this year we can conclude that biological diversity in the surveyed areas of these 3 rivers can be considered quite high, and available bioresource potential satisfies real standards for watercourses of Leningrad region.

Now let me say a few words about our recommendations for improving the aqua biological status of these rivers.

1. It is needed to reduce nutrient loading in the catchment area of Luga river middle flow, which tributaries are rivers Saba and the Yaschera.
2. During the field season 2014 studies of our unit should be carried out together with colleagues from our project which are carrying out hydrochemical researches to find “hot spots”.
3. As I said at the end of April this year, we need to work on a single coordinated network of stations. I hope that such agreement finally will take place.

- It is necessary to carry out explanation to local farmers and agribusiness in Luga district. We propose to develop a series of seminars for them on the basis of three research and teaching institutions:
  1. Geostation “Zhelezo”;
  2. Geobase of University of Water Communications;
  3. Leningrad Regional Institute of Education Development.
- Scientific-pedagogical teaching staff of these institutions will give local farmers and agribusiness employees necessary knowledge about the carrying out of their activities without damadge to the inhabitants of neighboring rivers and reservoirs.
- These three organizations after request from the leadership of the Luga district could organize refresher courses for teachers in secondary schools, local farmers and agribusiness area.

- All that was briefly mentioned above are recommendations how aqua biological state could quickly be improved in the nearest future. However, let me conclude by briefly to say what it will be necessary to undertake in the coming years (until 2020).
- Our Project SE717 is called “Clean Rivers to Healty Baltic Sea”. This call is unoriginal. Many projects referred to in this way. But let me now to remember those who for the first time not only sounded the call, but also filled it with concrete work.
- We are talking about professors Tatuo KIRA, Masahisa NAKAMURA and Walter Rast.

Tatuo Kira
1919 – 2011

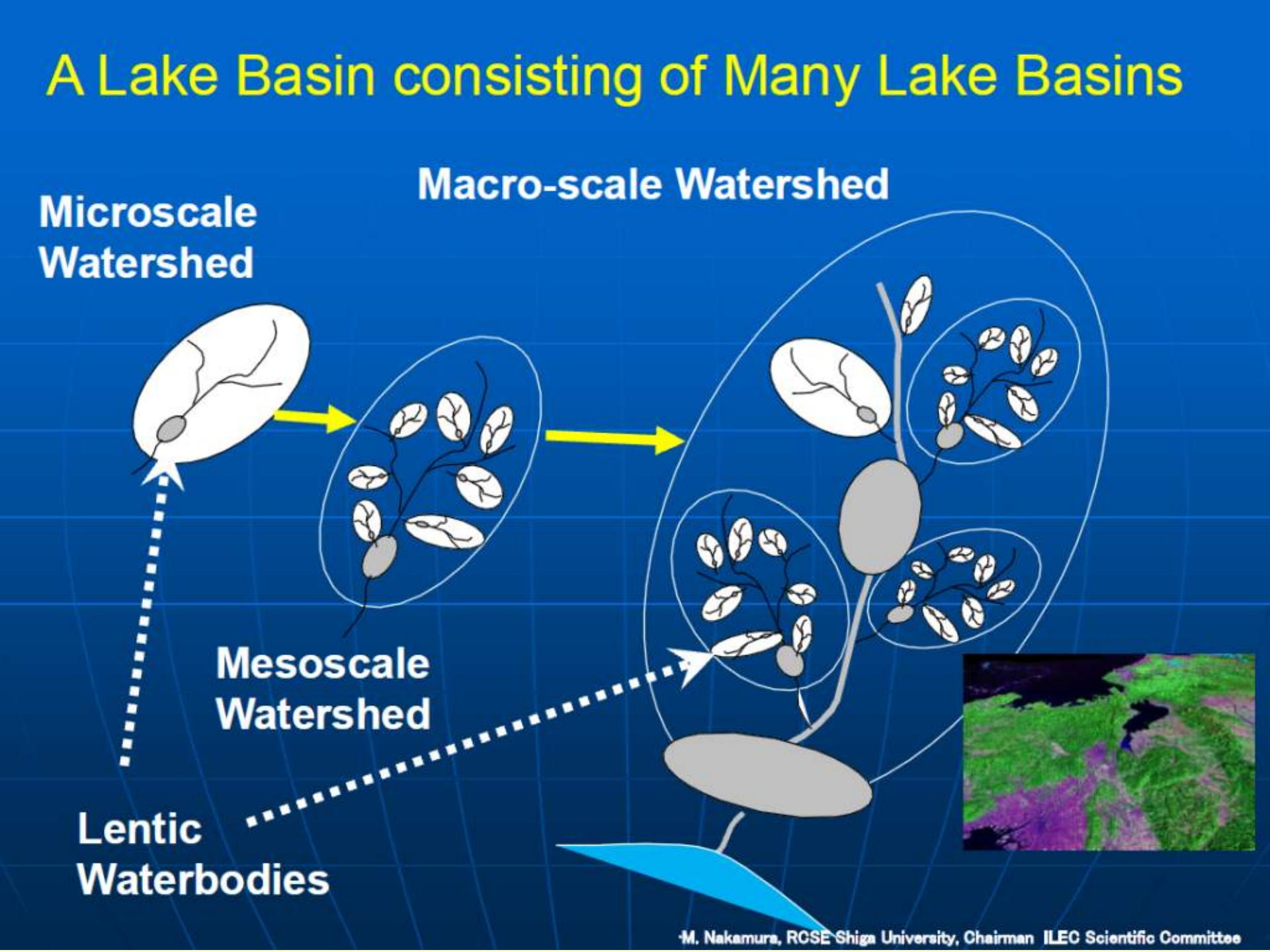
Masahisa Nakamura

Walter Rast

- The first of them, Tatuo KIRA, in the late 1970s advance slogan “Clean rivers in the Lake Biwa healthy”, and then together with his student Masahisa NAKAMURA quickly realized it.
- In 1984, thanks to the successful implementation of this slogan which had implications not only for Japan but also for the whole world the idea of creating the World Organization for Study Lakes (ILEC). After 2 years, thanks to the support of the Japanese government and the Imperial family, the organization started its activities.
- In summer 2008, the Leningrad region and adjacent territories were included in the work plans ILEC. Masahisa NAKAMURA and Walter RAST suggested by the results of his first visit 5 years ago, a separate program for the Baltic Sea and its catchment area.
- These scientists as I believe the Baltic “newborn” sea, which has more features lake than sea. Indeed, only a few thousand years ago, Baltic Sea was glacial lake and had no connection with the oceans. Therefore, all the methodology developed for the ILEC catchment areas of lakes, can be successfully applied also to the Baltic Sea.

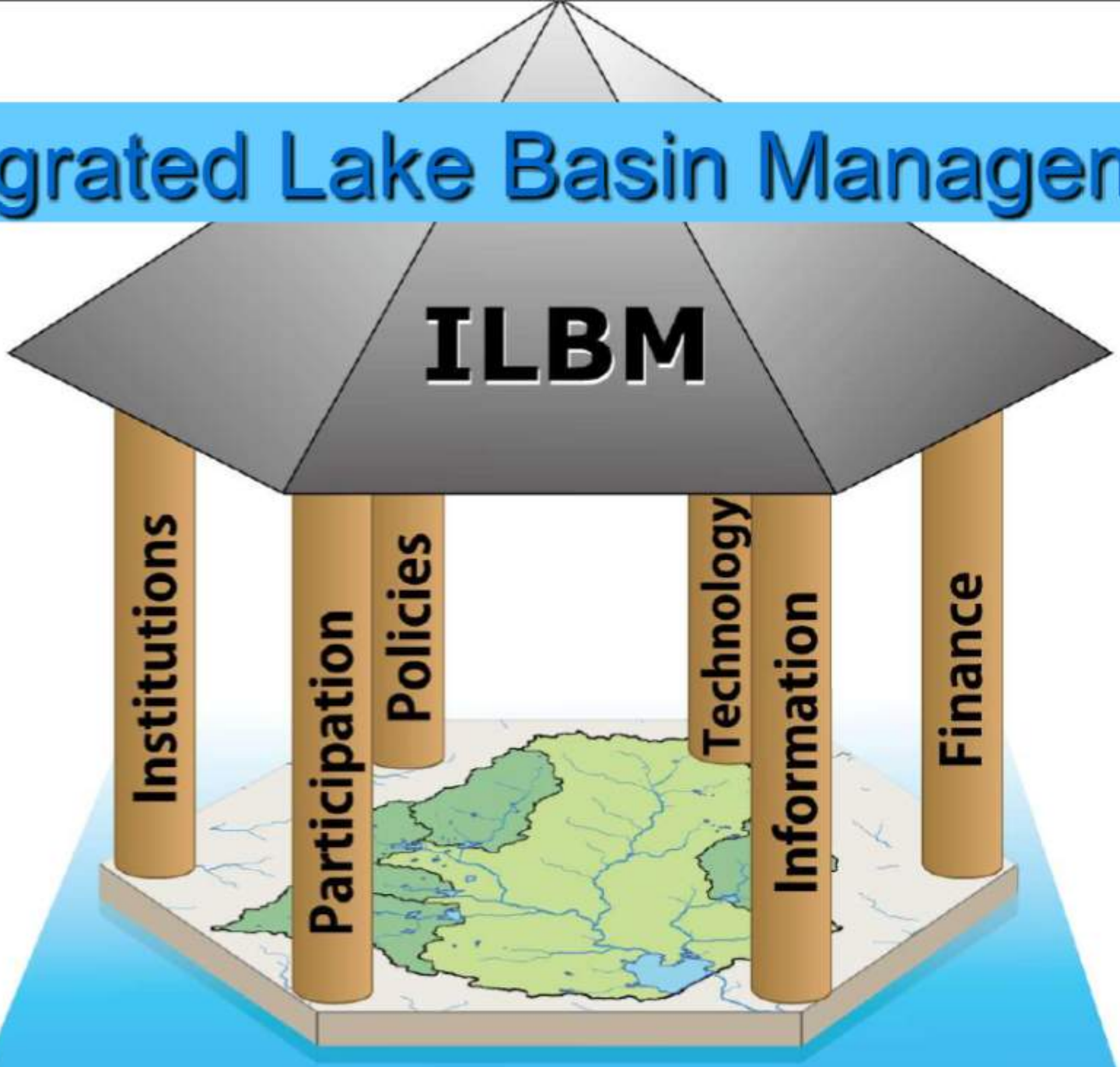
- During the years of successful work of ILEC on lakes in various countries it was formulated the ILBM principle (Integrated Lake Basin Management) to be applied to the Baltic Sea as a whole and to its individual bays in particular.
- Several years ago, at Baltic Sea Day Masahisa NAKAMURA gave a proposal to apply the ILBM principles to the catchment area of this “newborn” sea the leader and organizer of this forum L.K. KOROVIN.
- Let me briefly touch on six fundamental ILBM principles.

A Lake Basin consisting of Many Lake Basins



·M. Nakamura, RCSE Shiga University, Chairman ILEC Scientific Committee

Integrated Lake Basin Management



Once again I remind you that “Pagoda ILBM” rests on six pillars. This pagoda itself I call “Pavilion ILEC”.

The six fundamental pillars.

1. information.
2. finance.
3. technology.
4. policies.
5. institutions.
6. participation.

Our Project SE717 will work well, if we strictly adhere to these principles.

- ILBM is a way of thinking that assists lake basin managers and stakeholders in achieving sustainable management of lakes and their basins. It takes into account that lakes have a great variety of resource values whose sustainable development and use require special management considerations for their lentic (static) water properties.
- Good basin management of a lake can be realized only through ILBM, or continuous improvement of lake basin governance, that integrates Institution, Policy, Participation, Science, Technology and Finance. ILEC promotes ILBM globally, with long-term and strong political commitment, in order to improve the state of world's lakes.
- Integrated Lake Basin Management (ILBM) is a conceptual framework designed for assisting managers and stakeholders in achieving sustainable management of lakes and their basins, with its six fundamental pillars for governance improvement as shown below. The primary characteristic of ILBM is that it is not a prescriptive planning procedure. Rather, it is a compilation of lessons learned from the global experiences of lake basin management in the past, synthesized to address complex planning issues with a basin governance framework that reflects the unique features of lentic waters such as lakes and reservoirs (i.e., long retention time, complex response dynamics, and integrating the surrounding environment and human activities).
- For a successful lake basin management, it is essential to fill the gaps between what has already been done, and what remains to be achieved in its application process with long-term and strong political commitment. Continuous efforts will be necessary to further expand and refine the concept of ILBM for a better future of lakes and other water bodies that are now under serious threat of degradation, particularly caused from human activities and climate change.

Institutions

A management system with an appropriate organizational setup helps ensure sustainable benefits to lake basin resource users.

Policies

Policy tools must be better developed to facilitate concerted societal actions for sustainable lake basin management.

Participation

All lake basin stakeholders should participate in decision-making process for sustainable management.

Technologies

Although their effect often tend to be limited in certain areas and short period of time, physical interventions, such as shoreline and wetland restoration, provision of sewerage and industrial waste-water treatment systems, afforestation, mitigation measures for siltation control can play a significant role in improving lake environment.

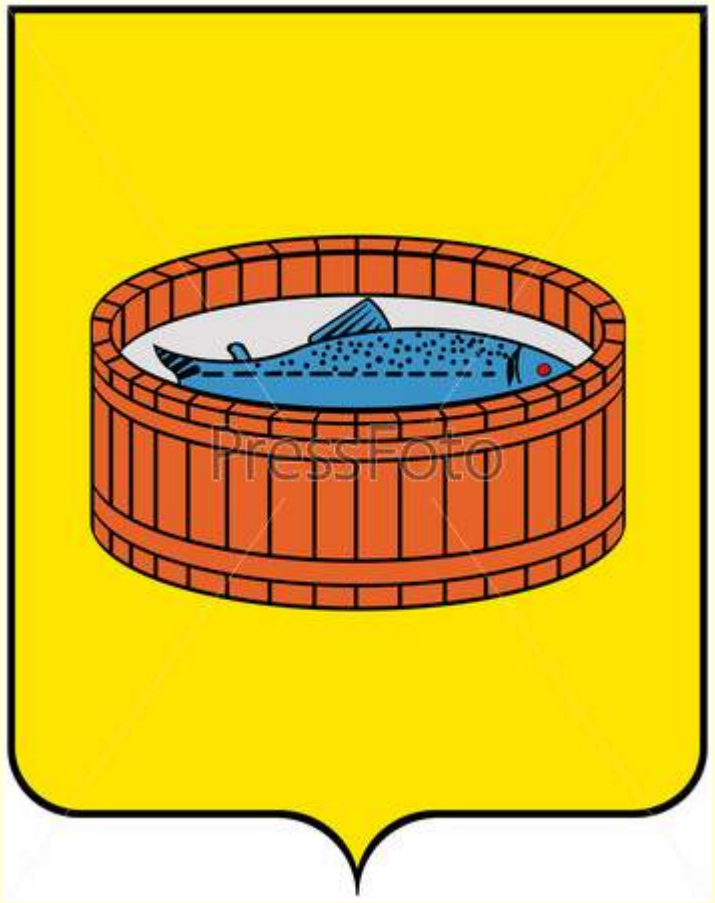
Information

Scientific and public perceptions on lake basin management can differ from case to case. Without knowledge generation and sharing, human and financial resources mobilized in lake basin management efforts may prove futile.

Finance

Financial resources should come from all basin stakeholders benefiting from both direct and indirect use of lake resources. Efforts must be made in order to develop innovative approaches for generating locally-usable funds.

- As is seen from the foregoing, without the creation of six fundamental ILBM pillars, it is unlikely to achieve perfect health of the Baltic Sea as a whole and in particular Luga River.
- Over the coming years, up to 2020, these six pillars of ILBM principle should be set up. This principle works on all continents. I have no doubt that it will work in the Leningrad region.
- Let's create in the Luga district relevant institutions, seek necessary funds and raise capable staff.
- I am sure that the day will come when the arms of the city of Luga will be true, and salmon will be much more common than now.
- I offer the first “Pavilion ILBM” build in the city of Luga on river bank in the indicated by local authorities place.



Thank you for your attention