Interreg Baltic Sea Region

EUROPEAN UNION

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WATERDRIVE

Waterdrive

WATERDRIVE

Water driven rural development in the Baltic Sea Region

CASE AREA in GURYEVS K - PROGRESS REPORT

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ADMINISTRATION OF GURYEVSK CITY DISTRICT

PARTNER MEETING IN JELGAVA

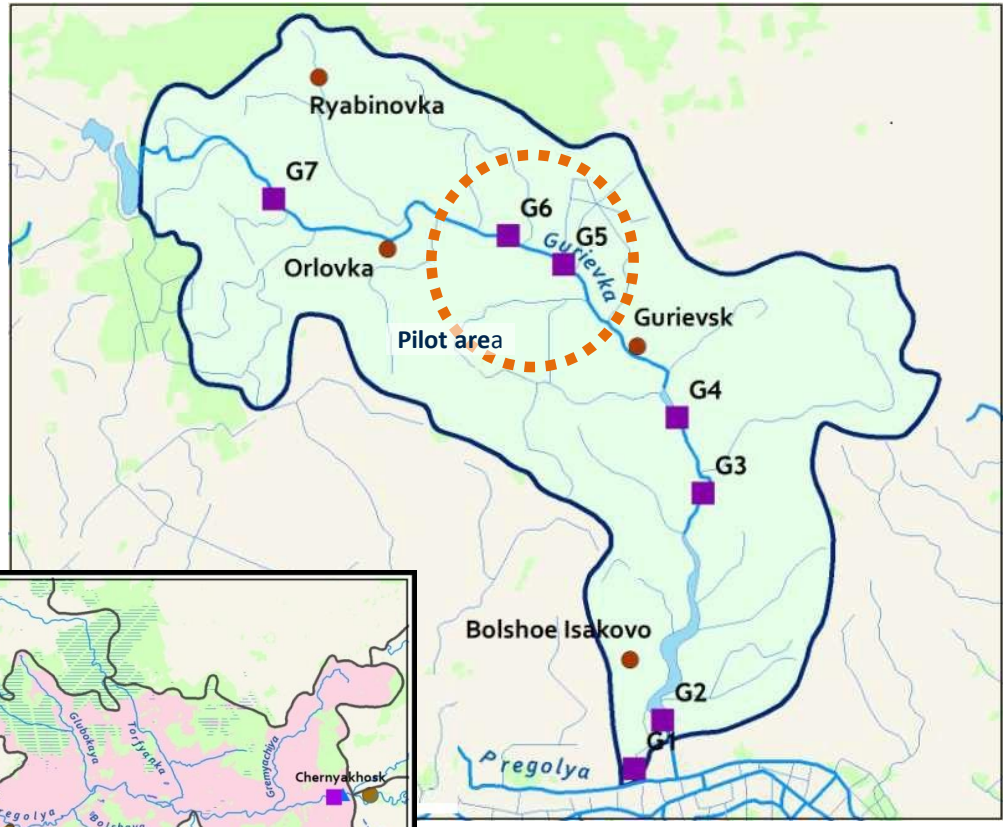
JELGAVA 2020 FEBRUARY 10-12

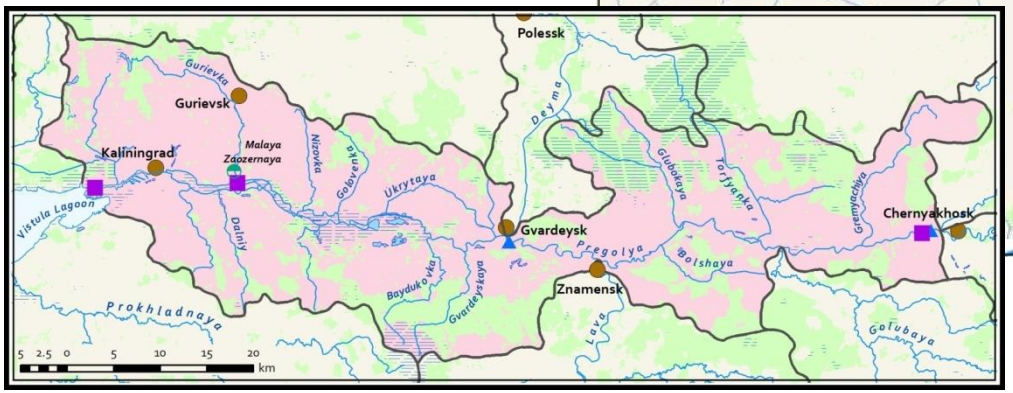
CHARACTERISTICS OF THE GURYEVKA RIVER BASIN CATCHMENT

- **Basin catchment area – 85.2 km^2**
- **The number of settlements in the basin of the river Guryevka – 19**
- **Number of inhabitants – 21 ths.**
- **Hydropower station – 1**
- **The length of the river is 27 km.**
- **River width:**

in the upper reaches is less than 2m

in the lower reaches - 5-6 m



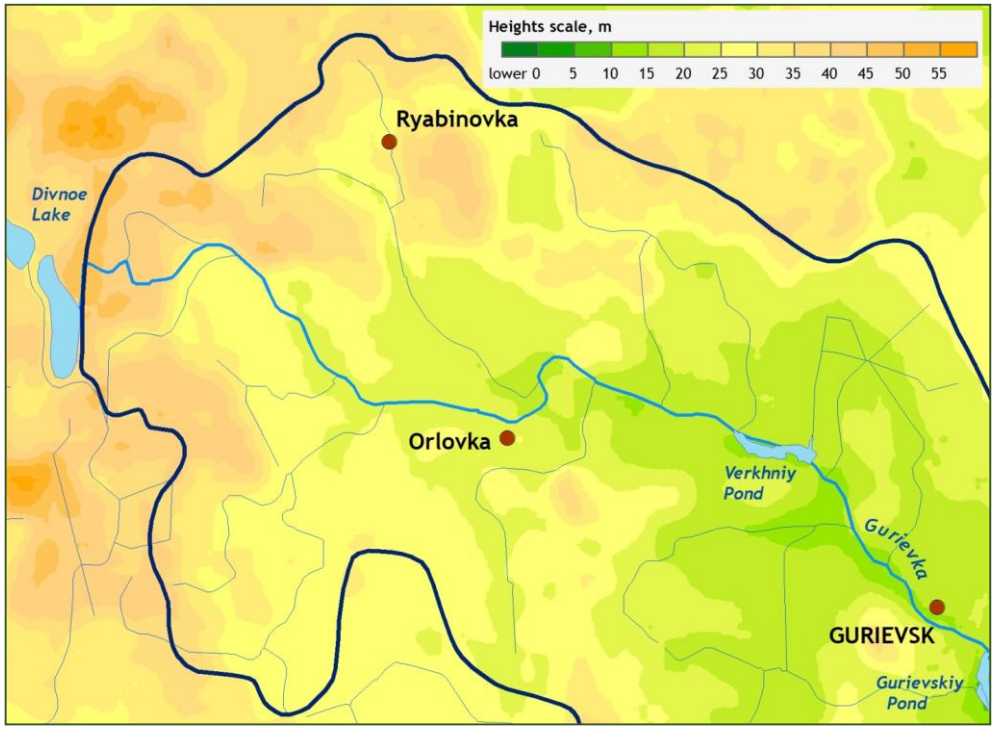


VISUALIZATION OF THE CASE AREA

The catchment of the drainage channels of the Upper Pond

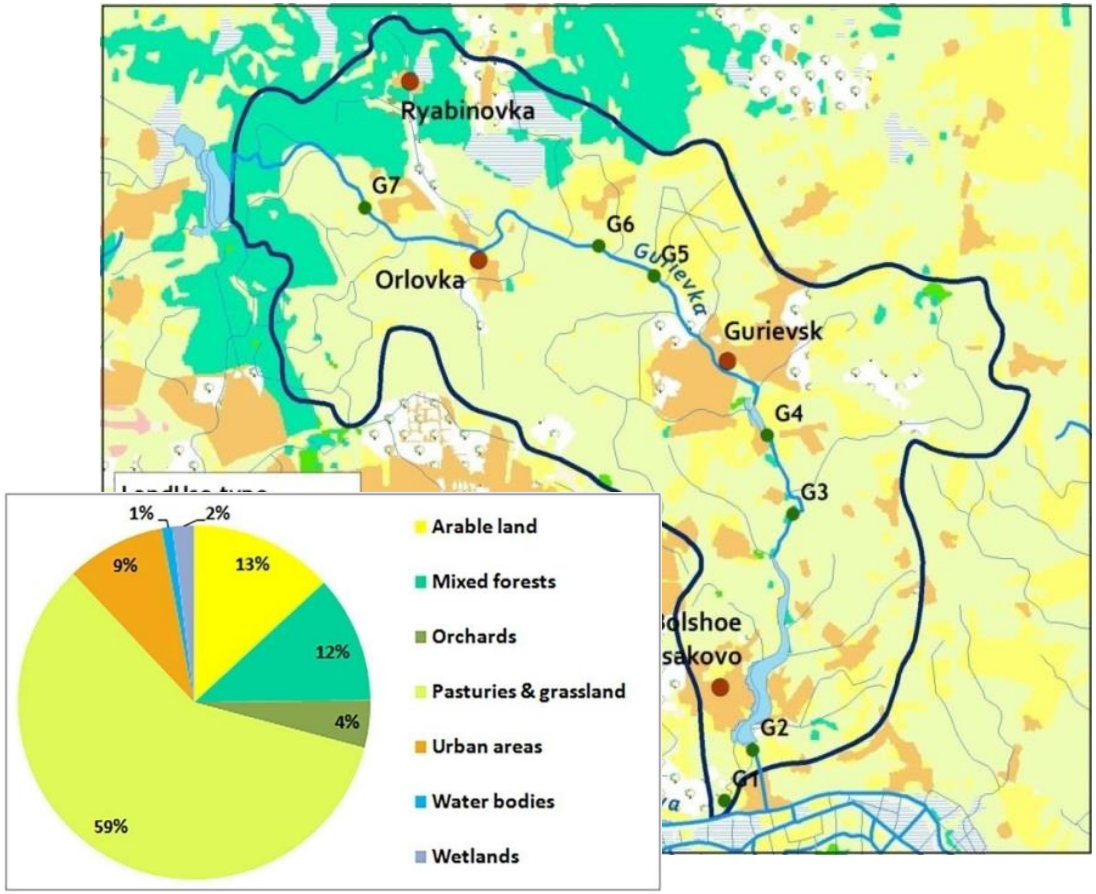
System catchment the upper pond / Lake Dambas

- The area of «Upper pond/Lake Dambas» is about 11.5 hectares
- Floodplain zone of the lake is about 6 hectares
- The water level in the lake can be adjusted by the gateway.
- 4 the drainage channels flow into the pond.
- The catchment of the drainage channels -850 hectares.



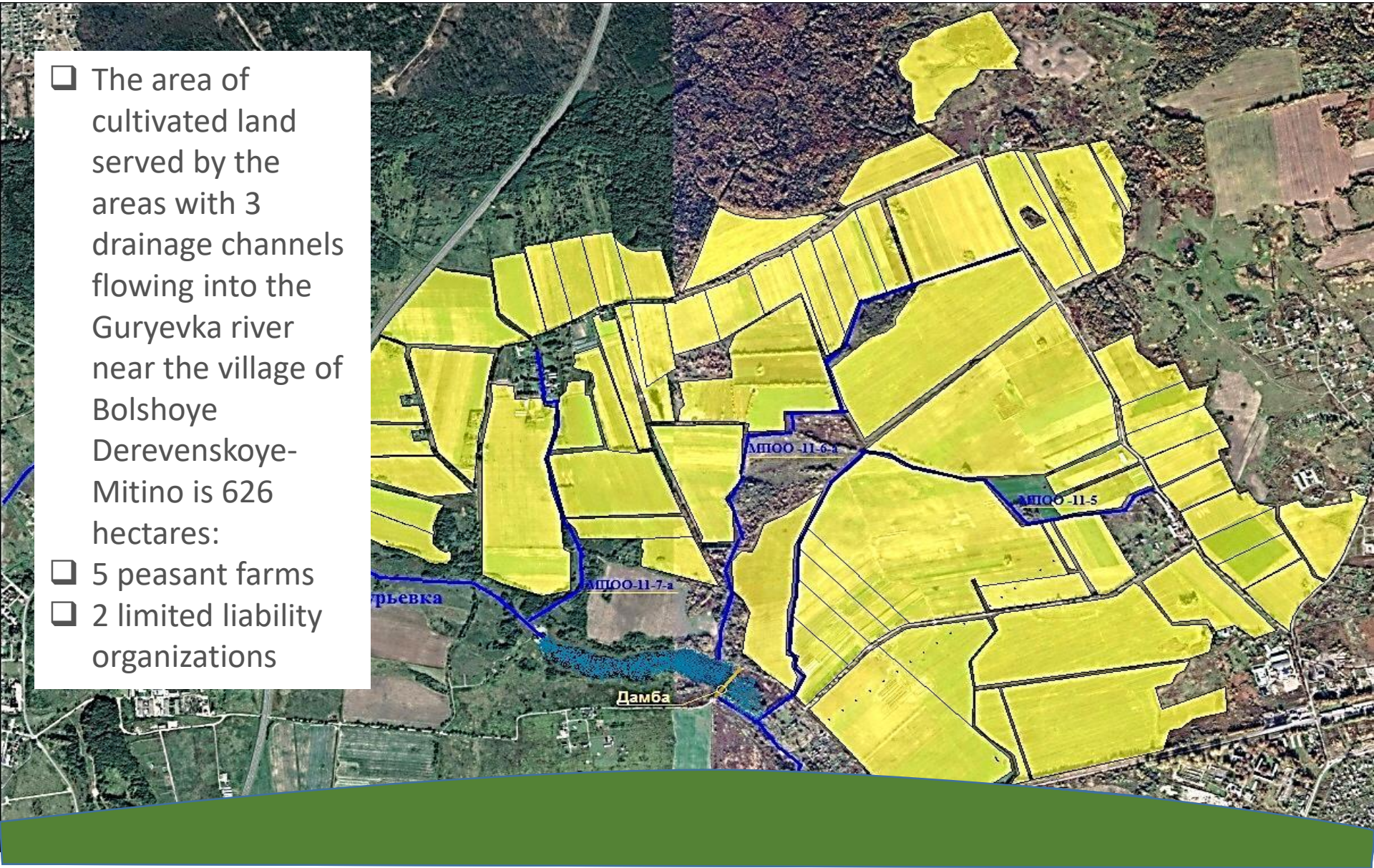
LAND USERS

- Approximately 60% of the Guryevka River Basin is occupied by agricultural land, but only
- 13% of them are arable land.
- An extensive drainage network is used to combat the waterlogging of the soil.



LAND USERS AND FARMERS

- The area of cultivated land served by the areas with 3 drainage channels flowing into the Guryevka river near the village of Bolshoye Derevenskoye-Mitino is 626 hectares:
- 5 peasant farms
- 2 limited liability organizations



STAKEHOLDERS AND THEIR ROLES

Local and regional authorities - (support activities aimed at the implementation of the project);	The head of the Guryevsk city district, Acting Chairman of the District Council of Deputies,AO37 Administration of Guryevsk city district
Department of Agriculture (Interaction with farmers);	Committee for agriculture, land use, natural resources and environment protection of Kaliningrad Oblast Duma, AO43; Department of Agriculture (Guryevsk);
Farmers and local private landowners in the selected area (main stakeholders);	Land owners in the area of upper pond: 7 farms(total farmland 626 ha)
Institutions/universities and schools (an active role in the case study);	Kaliningrad State Technical University, 38 AO Baltic Institute of Ecology and the hydrosphere, AO13; "School of the Future" in L. Isakovo
Contractors (implementation of plans and activities)	Baltic Institute for Ecology of the Hydrosphere Ltd GEOID (an engineering and geodesy survey); FGBU "Kaliningradmeliovodkhoz", AO39;
Ministries (coordination of environmental measures);	Ministry of Natural Resources and Environment of the Kaliningrad region Environmental Center "ECAT-Kaliningrad", AO36
WUP - ensuring close cooperation with entire groups in the preparation and implementation of the project.	WUP - Guryevsk; .Environmental Center "ECAT-Kaliningrad", AO36

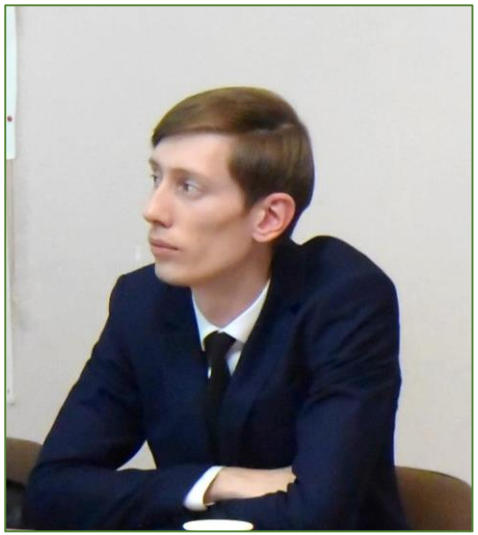
DETERMINING THE LOCATION OF THE WETLAND AREA

We have consulted with the following institutions:

- The Ministry of Natural Resources and Environment;
- "FGBU "Kaliningradmeliovodhoz“, AO39;
- Kaliningrad Technical University (KSTU, AO38),
- Baltic Institute of Ecology and the hydrosphere (BIEG),
- Department of Agriculture (Gurevsk),
- Municipal budget enterprise "Vodokanal" ,Gurevsk (water supply - sewerage);
- "ECAT Kaliningrad" (AO 36) .

Outputs:

Information about the borders of water-security zone Guryevka River: According to Article 65 of the Water Code of the Russian Federation, the water-protection zone r. Guryevka is 100 m.
According to item 16 in the zone permitted the design, construction, reconstruction, commissioning, exploitation of economic and other objects, providing water protection from pollution, contamination and exhaustion of water in accordance with the water legislation and that in environmental protection.



Head of the department of water
Ministry of Natural Resources
Pankratov Ignatius

FGBU "KALININGRADMELIOVODHOZ“, AO39

Outputs:

- ❑ Survey CASE AREA, using quadrocopter.
- ❑ Technical characteristics of drainage canals catchment area of the Upper pond of Guryevka River

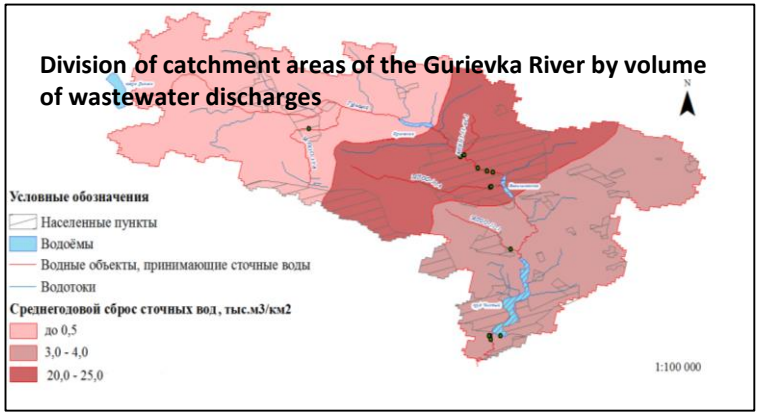
Drainage channels and river Guryevka are in the operational management of Federal state institution" Kaliningradmeliovodkhoz ".
All activities related to the inspection of the drainage channels should be coordinated with this structure.

Outputs:

Kaliningrad Technical University has provided research, "Hydrochemical and hydrobiological characteristics Guryevka river“

R. Guryevka - the object of the first fish category -16 species of fish.

Head of the Department of Ichthyology Shibayev Sergei



BALTIC INSTITUTE OF ECOLOGY AND THE HYDROSPHERE, AO13

Outputs:

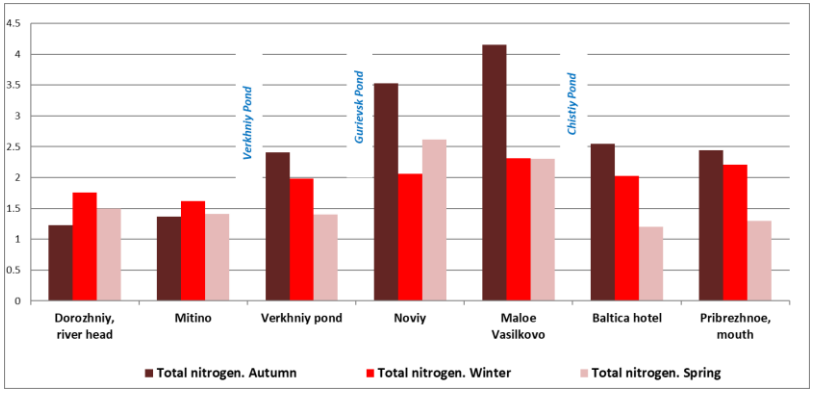
BIEG has provided research: "The state of the nutrient load in catchment Guryevka river. Watershed drains the Upper pond".

The analysis revealed that there is an increase in the concentration of nutrients from springhead to estuary. The concentration of ammonium nitrate and phosphorus phosphates is higher than the PCL.

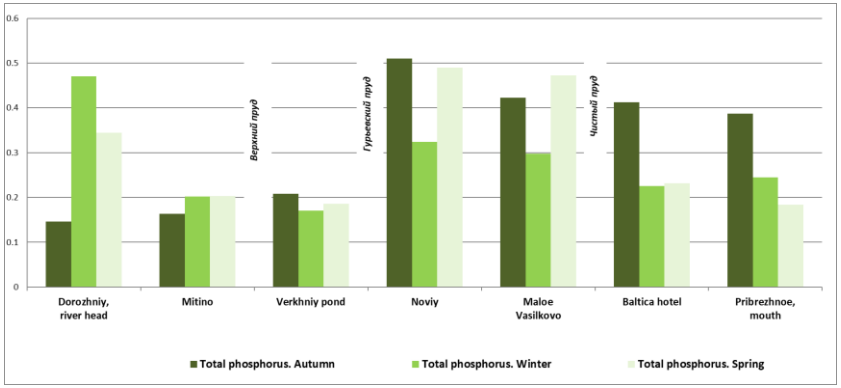
Not all ponds located along the river bed are natural filters. The concentration of nitrogen and phosphorus decreases only after Chistyi Pond.

Dmitry Domnin
Director BIEG

The results of analysis of samples Nitrogen



The results of the analysis of phosphorus samples



MUNICIPAL BUDGET ENTERPRISE "VODOKANAL", GURYEVSK (WATER SUPPLY - SEWERAGE).

Outputs:

Analysis of the discharge of pollutants into the channel **1** (MPOO-11-8), flowing into the upper pond Guryevka river (n. Orlovka)

- ❑ The volumes of wastewater discharge, and the concentration of pollutants in their composition increases.
- ❑ Composition wastewater varied.
- ❑ These factors lead to increasing anthropogenic load directly on the channel itself **1**, and the upper pond.

Deputy Director of "Wodocanal"
Gennady Solonchenko

CONCLUSIONS

Catchment drainage channel 1 (Land of settlements and agricultural land) will not be taken as CASE AREA, for the following reasons:
- The lack of free land for the construction of wetland
- It is necessary: to design and build wastewater treatment plants to meet modern requirements

ENGINEERING AND GEODETIC SURVEY

- Grounds for geodetic surveys in the area of 2.7 ha (channel 2 & 3) was determined.
- Topographic plan 1: 500 with height-sectional elevation of 0.5 m;
- Territory: within the borders of water-security zone Guryevka River. The territory does not include the land of private landowners and farms.
- After a final decision is made on the location of the of the wetland, a cadastral map will be developed to place the site on the cadastral register

SELECT THE TYPE OF WETLAND

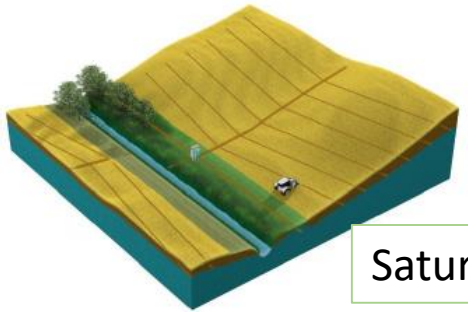
WETLANDS OF DENMARK

We studied the toolbox of best practices (Denmark, SEGES) with the aim of identifying the best performing filter substrates for retaining and transforming nutrients under highly variable flow regimes and nutrient loads.

surface flow constructed wetlands

Woodchip bioreactors

Intelligent buffer zones



Saturated buffer zones

SELECT THE TYPE OF WETLAND

WETLANDS
KALININGRAD REGION

In the Kaliningrad region there are only 2 types of treatment wetland types:

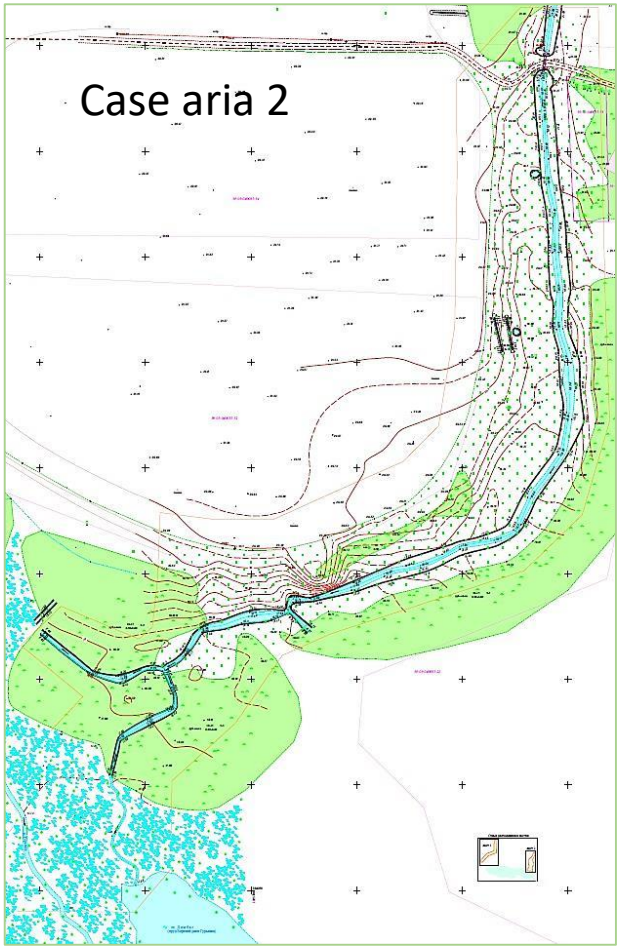
- ❑ in the village, Ilyushin Bagrationovsky District (2005);
- ❑ in the children's village "Salem" under the village Lublin;

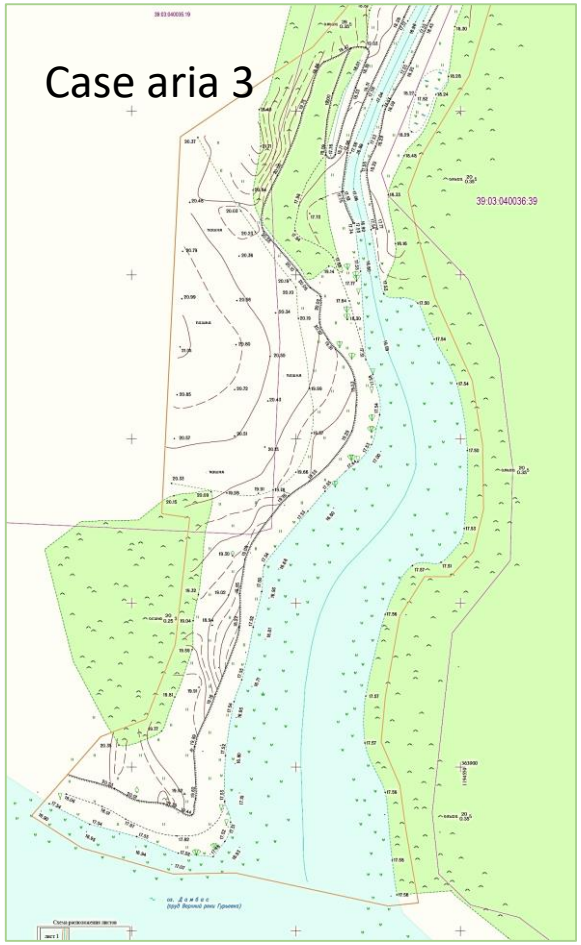
Launched in 2009, the plant sewage treatment plant type Wetland have proven themselves in the children's village of Salem, "Rainbow".

The use of a model project, proposed by the German side, allowed 30% reduction in the cost of construction of such facilities.

SELECT THE TYPE OF WETLAND

In order to determine the choice of the type of wetland, with regard to the conditions of our case area - we need to get professional advice, because the Kaliningrad region has not experts on Wetlands





PARTNER'S CONTRIBUTION OF GURYEVSK TO PROJECT COMMUNICATION

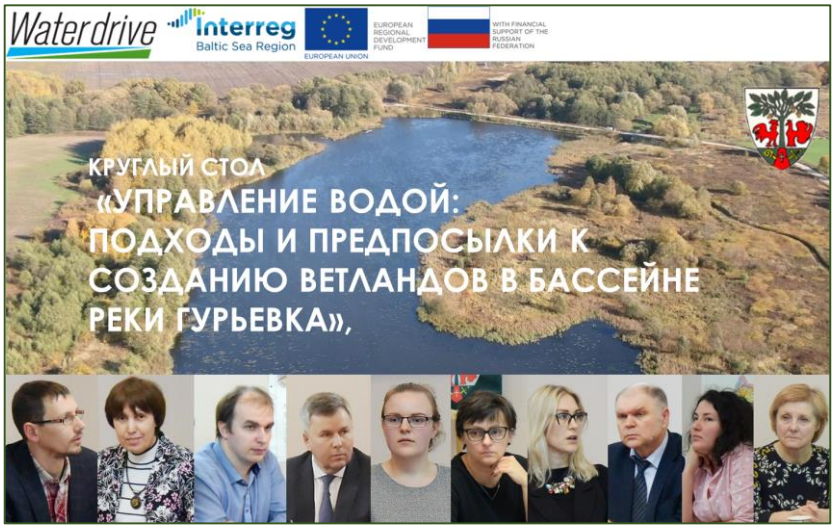
Outputs:

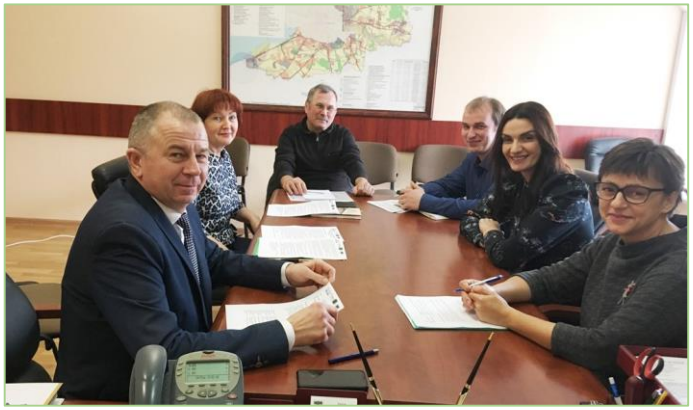
- Project page on Facebook **https://www.facebook.com/waterdriverussia/**
- Project page on the site of the administration of the Guryevsk city district **http://gurievsk.gov39.ru/index.php/culture/international-cooperation**
- On October 24, 2019 - Project Presentation in the forum "XVI Russian-German Ecology Day in the Kaliningrad region". **https://cloud.mail.ru/public/2xFe/3mXHhFQyc**
- A Roll-Up mobile stand was made and project posters were printed.

PARTNER'S CONTRIBUTION OF GURYEVSK TO PROJECT COMMUNICATION

Outputs:

- Held 4 meetings on the project, including a round table: "Water management: approaches and conditions for the construction of wetlands in the Guryevka river basin"





THE ACTION PLAN FOR 2020

- Continue field research and analysis of the drainage system of the upper catchment area of river Guryevka, to assess the impact on the environment. At this stage, schoolchildren of "School of the Future" will be involved.
- Continue working with the farmers, the advisory service, the municipality and other stakeholders (Seminars and roundtables, personal meetings).
- Initiate issues associated with land relations and the procedure: a cadastral map will be developed to place the site on the cadastral register.
- To develop of technical solutions for the subsequent design of wetland.
- To develop a technical project and estimate documentation for construction of the wetland, followed by implementation of the project.
- Study visits to partners WaterDrive.

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Thanks for attention !