

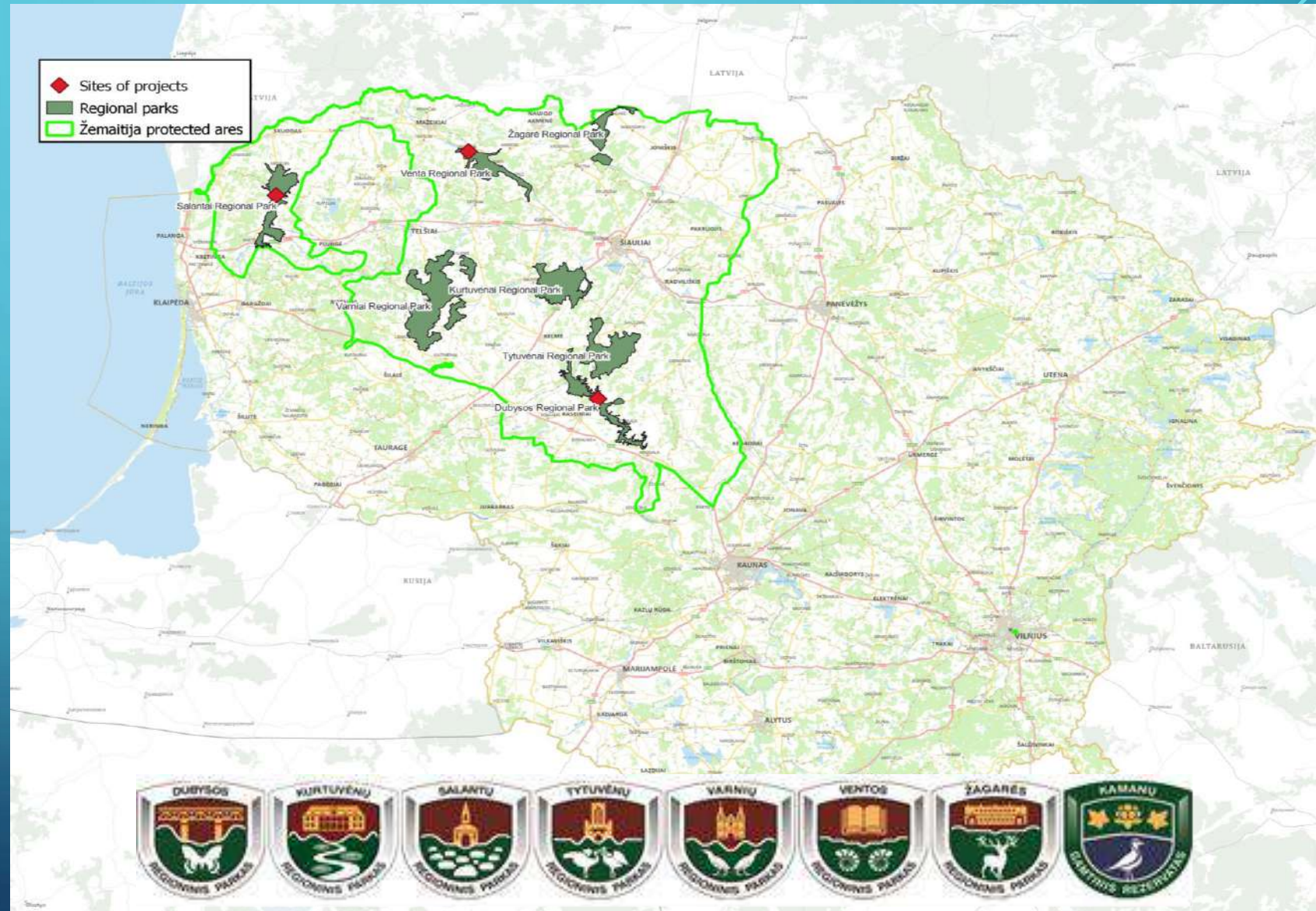
# IMPLEMENTATION OF THE RIVER CONNECTIVITY PROJECTS IN DUBYSA, SALANTAI AND VENTA REGIONAL PARKS



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In Žemaitija protected areas directorate  
2023-09-21

# ŽEMAITIJA PROTECTED AREAS

- After 2022 June 18 regional park and 1 nature reserve directions merged into 1 directorate.
- One of the most important functions of Žemaitija protected areas directorate are to restore damaged landscapes and protection of biodiversity
- Dubysa, Salantai and Venta regional parks main aim is to protect landscapes and biodiversity in river valleys



# IMPLEMENTED RIVERS CONNECTIVITY PROJECTS



## DUBYSA

- "Removal of reinforced concrete remains from the Dubysa river bed in the Dubysa regional park"
- Cost: 76 684,35 Eur.
- 2020 november – 2023 may.
- No monitoring programme.



## VENTA

- "To create conditions for fish migration by removing the remains of the Žerkščiai dam in the Venta river"
- Cost: 4271,30 Eur.
- 2020 november – 2022 september
- No monitoring programme



## SALANTAI

- „Removal of obstacles to fish migration at the dam of the city of Salantas and improvement of the state of the water body in order to restore the bed of the Salantas river“
- Cost: 310 520,54 Eur.
- 2020 december – 2023 april.
- Monitoring programme – prepared

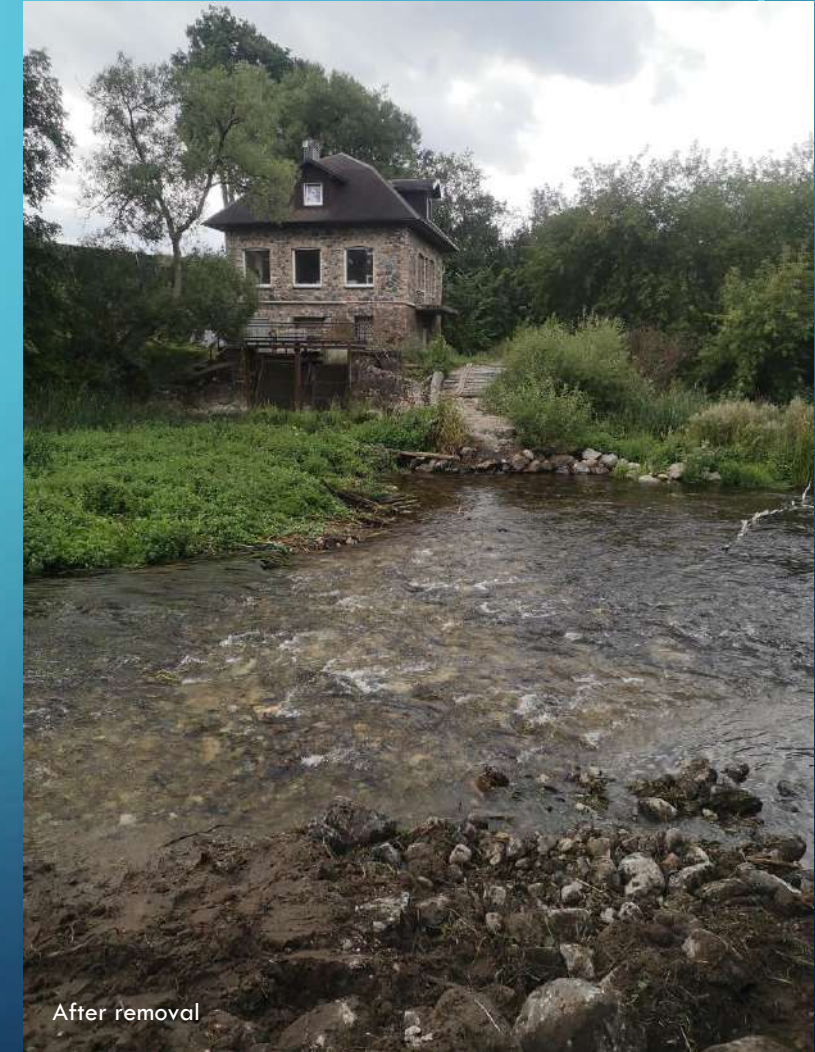
- All three projects directly implemented Lithuania action plan for 2017-2023 years period to meet EU Water frame directive 2000/60/EC requirements;
- Fully funded by EU structural funds and administered by the Žemaitija protected areas directorate.

# THE PROJECT „TO CREATE CONDITIONS FOR FISH MIGRATION BY REMOVING THE REMAINS OF THE ŽERKŠČIAI DAM IN THE VENTA RIVER“

- The Venta River basin is one of the most fragmented in Lithuania;
- The Project target species – *Unio crassus*;
- Venta river basin – transboundary water body (flows in Lithuania and Latvia republic);
- Part of „Natura 2000“ ecological network , the sites are digested to protect river lamprey, European otter, european bitterling, spined loach and natural habitats types;
- Fish migration obstacle - boulder ramp, built to raise a water level;
- No cultural heritage sites;
- Around 30 cubic meters of boulders removed in one day!
- Removed fish migration obstacle are in between damed sections of Venta river.



Removal in progress



After removal

# THE PROJECT "REMOVAL OF REINFORCED CONCRETE REMAINS FROM THE DUBYSA RIVER BED IN THE DUBYSA REGIONAL PARK"

- Dubysa river are one of the most important salmonid rivers in the Lithuania;
- Free flowing in almost at all lenght;
- Part of „Natura 2000“ ecological network , the sites are digested to protect brook lamprey, Atlantic salmon and *Unio crassus*.
- Obstacle for fish migration after explosion of bridge in WW2. Old remans of bridge have negative effects for habitat quality and fish migration;
- Around 851 t of reinforced concrete was removed form Dubysa river bed.



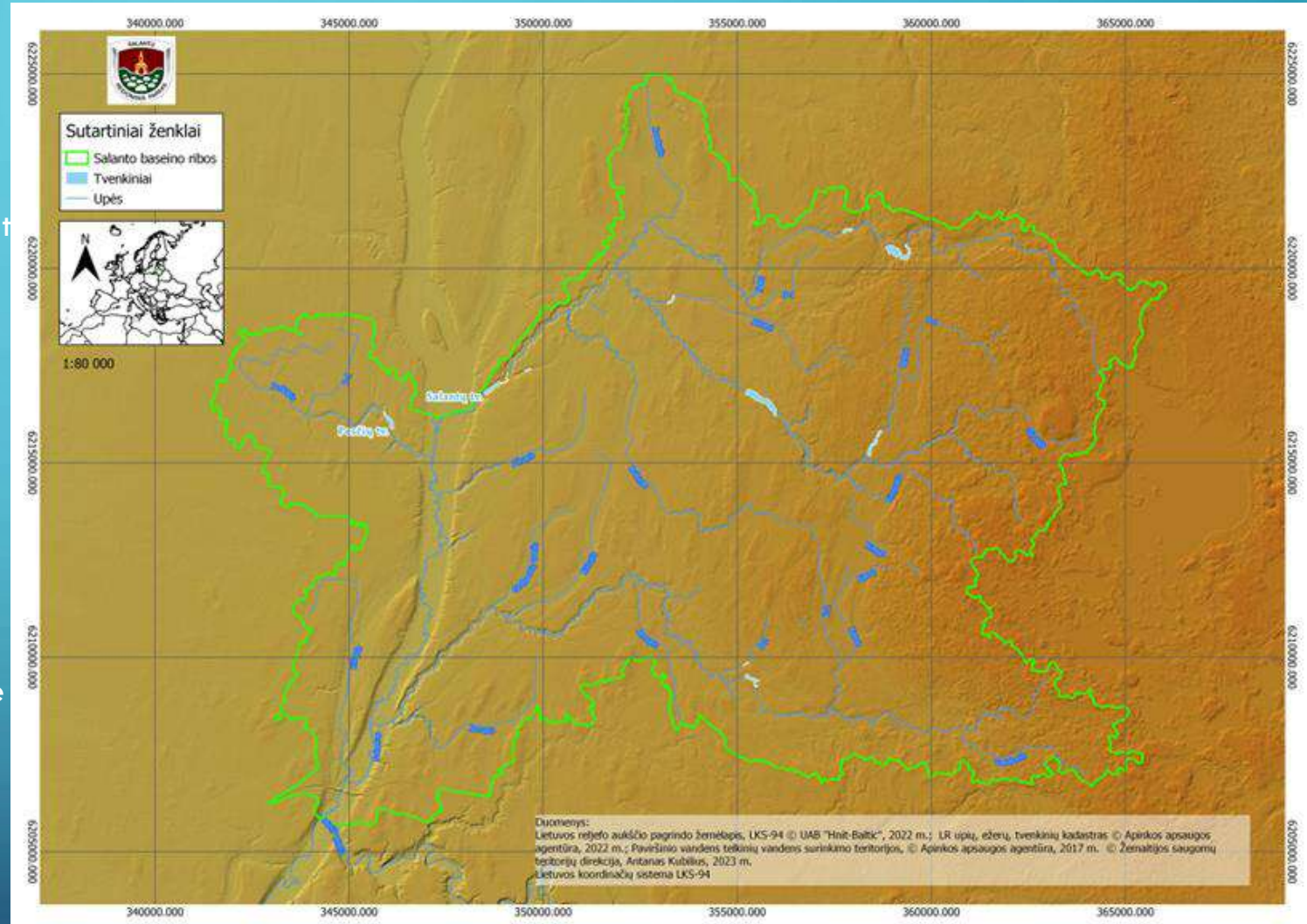
Bridge before explosion, about 1940



Removal of reinforced concrete debris, june of 2021

# SLANTAS RIVER BASIN

- Salantas river are one of main tributaries of Minija, that is part of the Nemunas river basin (the biggest in Lithuania). Nemunas flows into Baltic sea through Curonian lagoon.
- Salantas river basin occupies 266 km<sup>2</sup>. Salantas starts at Dvarupis and Gintelis rivers confluence, length of river are 46 km, average Discharge at mount - 3,36 m<sup>3</sup>/s . Salantas river system are characterized by strong flooding events.
- Main tributaries are: Blendžiava, Kūlupis, Pestupis, Alkupis, Bubinas, Notė, Alksnė, Ringupis, Bebrė.
- Salantas river flows in two different valleys . First are narrow and deep erosion type valley (steep slope, fast current, lots of boulders and gravels). Second are in wide fluvio-glacial valley (river meanders a lot, low slope mostly sandy witch same gravels bottom).
- Salantai dam blocked 15 km of Salantas river (witch tributaries 46km which 30km are natural salmonid like rivers and creeks).
- Other major fish migration obstacles: Tuzai dam, Notėnai dam, Šateikiai dam.



# FACTS ABOUT SALANTAI DAM:

- Bilt in 1991-1993 yraes in the old site of Salantai mill house;
- Spillway height – 3,96 m., length –28,3 m., Height of dam embankment – 4,5m, length – 94 m, plotis – 4m.;
- Area of pond – 4,5 ha, average depth – 1,5m , mx depth – 3m
- In the territory of the pond, the old bed of the Salantas river was leveled;
- Abundant amounts of accumulated sediments (mostly sand);
- The negative effect of the pond was felt about 1.5 km above the pond area;
- No cultural heritage sites.



# SALANTAS RIVER IMPORTANCE IN BIODIVERSITY PROTECTION

- Ichthyological nature reserve, two hydrographic nature reserves;
- Part of Natura „2000“ ecological network. Sites are designated rheophilic species, natural habitat types and birds species protection;
- One of the best populations of lampreys and sea trout in Lithuania.

## PROTECTED SPECIES IN SALANTAS RIVER VALLEY:



riffle minnow



Vimba bream



Sea and Brown trout



Spined loach



European bullhead



European bitterling



Unio crassus



European otter



River, brook, ukrainian lampreys



Kingfisher



Corn creake



Collema flaccidum



Salanto above Salantai dam



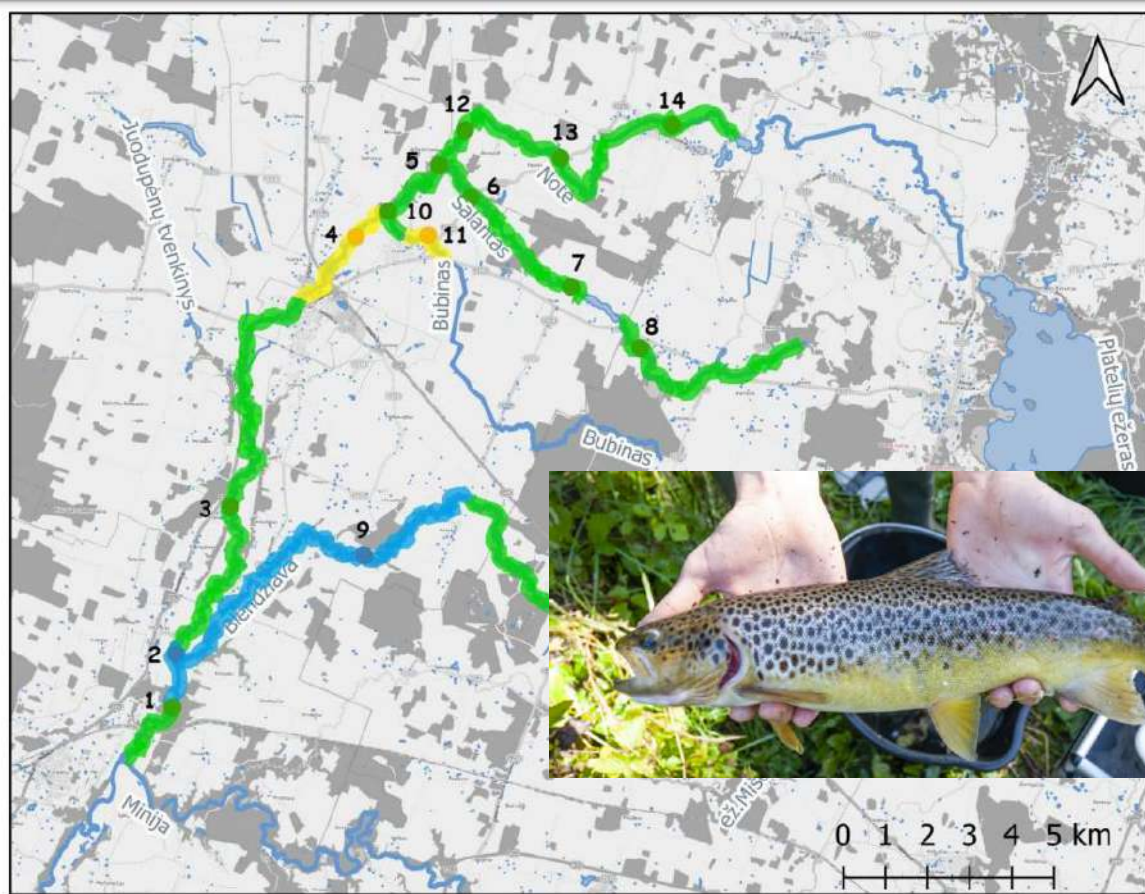
Salantai dam



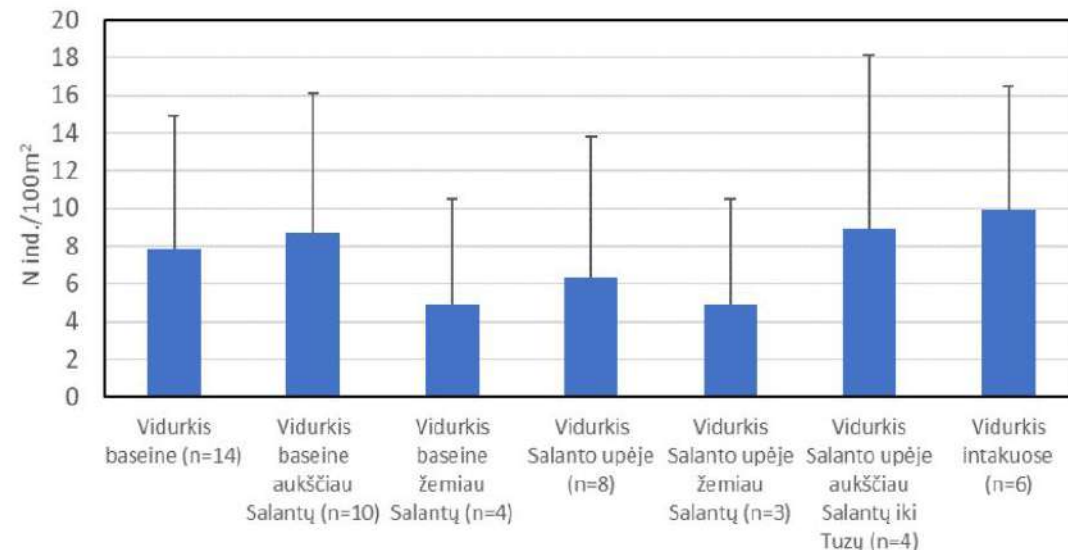
Salantas below Salantai dam



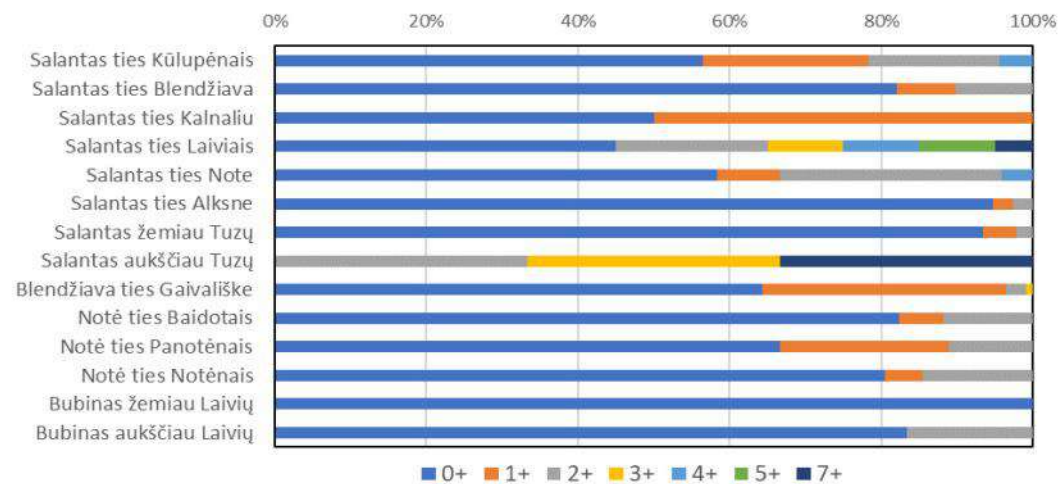
# SALANTAS RIVER FISH COMMUNITY AND POPULATION STATE OF *SALMO TRUTTA*



Ecological status classes according to LŽI (Lithuanian fishes index). Classes are marked with standard colors: blue - very good; green - good; yellow - medium; orange - bad; red - very bad.



Distribution of *Salmo trutta* population abundance (N) and biomass (B) in different 2021 year in the studied areas of the Salantas basin.



Distribution of age groups of *Salmo trutta* individuals in different areas studied in 2021 in the Salantas basin.

# THE IDEA OF FISH MIGRATION RECOVERY IN SALNATAS RIVER

- in 2017 March 24 a seminar was held at the visitors' center of the Salantai regional park - a discussion "*Opening the migration routes of salmon fish in the Salantas river*". The aim of the seminar is to discuss the impact of the dams in Salantas river on migrating fish and to find possible rational ways of removing existing migration obstacles.



# PREPARATION FOR REAL WORKS

- In 2019 November the reconstruction/demolition study of the water spillway of the Salantai city dam has been prepared, on the basis of which in 2020 4 alternatives of pre-project proposals were prepared (from the installation of a fishpassage to the recovery of a completely free flowing river);
- After public presentations and meetings was chosen forth alternative, that fully meets goals to restore fish migration and have positive effects on Salantas river system;
- In the end of the 2020 all permits and Project financing was secured.

## Salantai pirmi Lietuvoje atvertų kelią lašišinėms žuvisms

Gamta 2020-01-28



Demontavus užtvankos pralaidą, būtų atstatyta Salanto upės vaga ir įrengtas naujas tvenkinys.

Aplinkos apsaugos agentūros atstovas.

Estijoje užtvankų skaičius – panašus, kaip ir Lietuvoje, tačiau šioje šalyje jau įgyvendinami upių atkūrimo projektai: ten nugriautos ar rekonstruotos įgyvendinti pilotinį projektą ir taptų pirmuoju tai padariusiu šalyje.

Estai anksčiau už lietuvius pradėjo spręsti žuvų migracijos problemas prie užtvankų įrengdami vadinamuosius žuvitakius: nuo XX a. 6–7 dešimtmė projekta būtų laimingi visi: ir žuvis, ir žmonės“, – kalbėjo G. Sabas.

Jis pasitarimo dalyviams parodė sta hidroelektrinė, tvarkoma infrastruktūra, t

**Svarstė keturias alternatyvas**

Bendrovės „Primega“ direktorius Re

„Pirmasis pasiūlymas – klasikinis: įr

Antras pasiūlymas – iš dalies nuardyti sl

nepritaria Saugomų teritorijų tarnyba. Jo

pramogoms“, – kalbėjo R. Pužas, pridūr

Susitikime dalyvavusio Salantų mie

žvejų klubo valdybos pirmininkas Sauli

iniciatyva ir visokeriopai prisidės, kad šis



Salantų regioninio parko direktorius Modestas Šečkus priminė, kodėl buvo intansi iniciatyvos rengti pirmąjį Lietuvoje projektą.

Demontuoti užtvankos pralaidą, atstatyti Salanto upės vagą, šalia jos įrengti naują tvenkinį visa tai būtų įgyvendinta, salantiškiai taptų pirmaisiais Lietuvoje, įgyvendinusiai Europos Sąj

**Užtvanka – neįveikiama kliūtis**

Salantų parko direkcijoje įvyko pasitarimas, kuriame buvo pristatytos Salantų miesto užtv Vilmantas Graičiūnas, Aplinkos apsaugos agentūros Hidrografinio tinklo skyriaus vedėjas Gin Pužas, Kretingos rajono savivaldybės mero pavaduotojas Dangiras Samalius bei administraci mokslis darbuotojas Andrius Skersonas, Salantų žvejų klubo nariai, bendruomenės atstovai.

Pasitarimą moderavęs Salantų regioninio parko direktorius Modestas Šečkus priminė, ka 15 cm lašišaitės migruoja į jūrą. Salanto upės lašišos negali grįžti į savo gimtąsias nerštavietes. Žuvų migracijos kelio atkūrimas ties Salantų miesto užtvanka numatytas Vandenių srities prieš porą metų, dabar gi pristatoma, kokie namų darbai per tą laiką parengti.

M. Šečkus priminė ir tai, jog būtent regioninis parkas pasirinktas šiam projektui įgyvendinti biudžeto.

**Laimingos žuvis, laimingi žmonės**

Prieš pristatydami gerąją upių vagų atstatymo bei žuvų migracijos kelių atkūrimo Estijoje statytą 5–6 praejusio amžiaus dešimtmetyje ar net prieškarį, tad kas trečia jų – itin prastos bū

„Šios užtvankos – jau tikrinti uždelsto veikimo bomba. Kasmet įvyksta viena ar dvi ave



<https://www.pajurionaujienos.com/?sid=19524&act=exp>

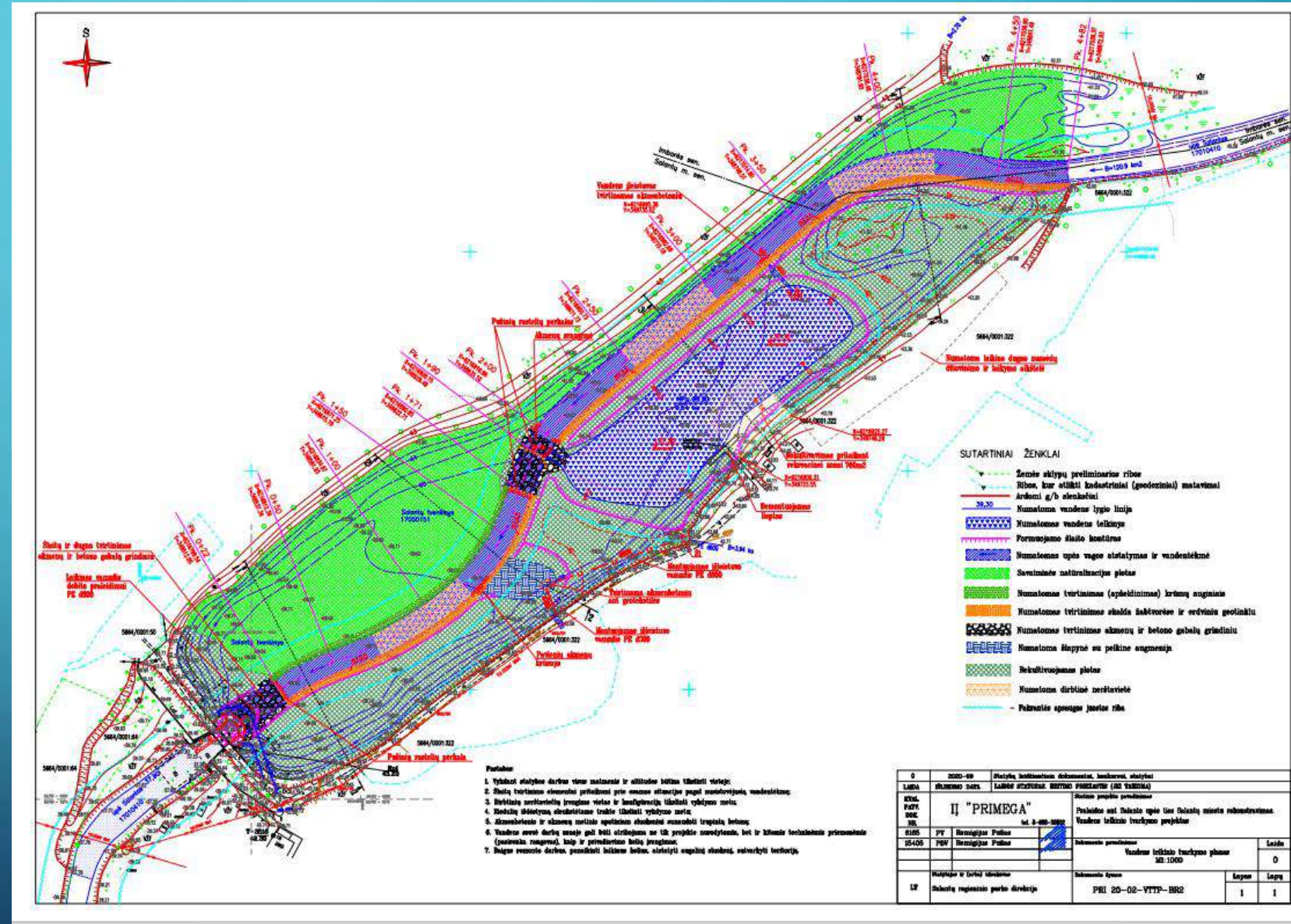
# THE FINAL SOLUTIONS OF TECHNICAL DESIGN STUDY:

## SALANTAI DAM SPILLWAY REMOVAL:

1. Removal of reinforced concrete waters spillway;
2. installation of boulder ramp (20 cm high in 20 m length).

## RECOLTIVATION OF POND TERRITORY:

3. The formation of new river bad (482 m long);
4. The river banks stabilation by *Salix* cutings, spilings, pabbels and boulders;
5. Installation of artificial spawning grounds;
6. Formation of wetland and artificial pond.



# PREPARATION FOR CONSTRUCTION WORKS

- 2021-08-06 start of Salantai pond dewatering;  
2021-08-25 finish of Salantai pond dewatering;
- All fishes from pond released down stream;
- No die-of of fishes and no significant changes water quality decreasing downstream.



Progress of Salantai pond water lowering.



Regular checks of dewatering process by authorities.



Angling was forbidden in pond territory.



Checking for trapped fish in pond territory.



Final fish replacement event.

# CONSTRUCTION WORKS. REMOVAL OF SALANTAI DAM SPILLWAY.

- 202-09-01 d. Start of demolition works, finish of demolition 2021-09-24.
- Technical break until 2022-01-02.

Temporary embankment formation for demolition works:

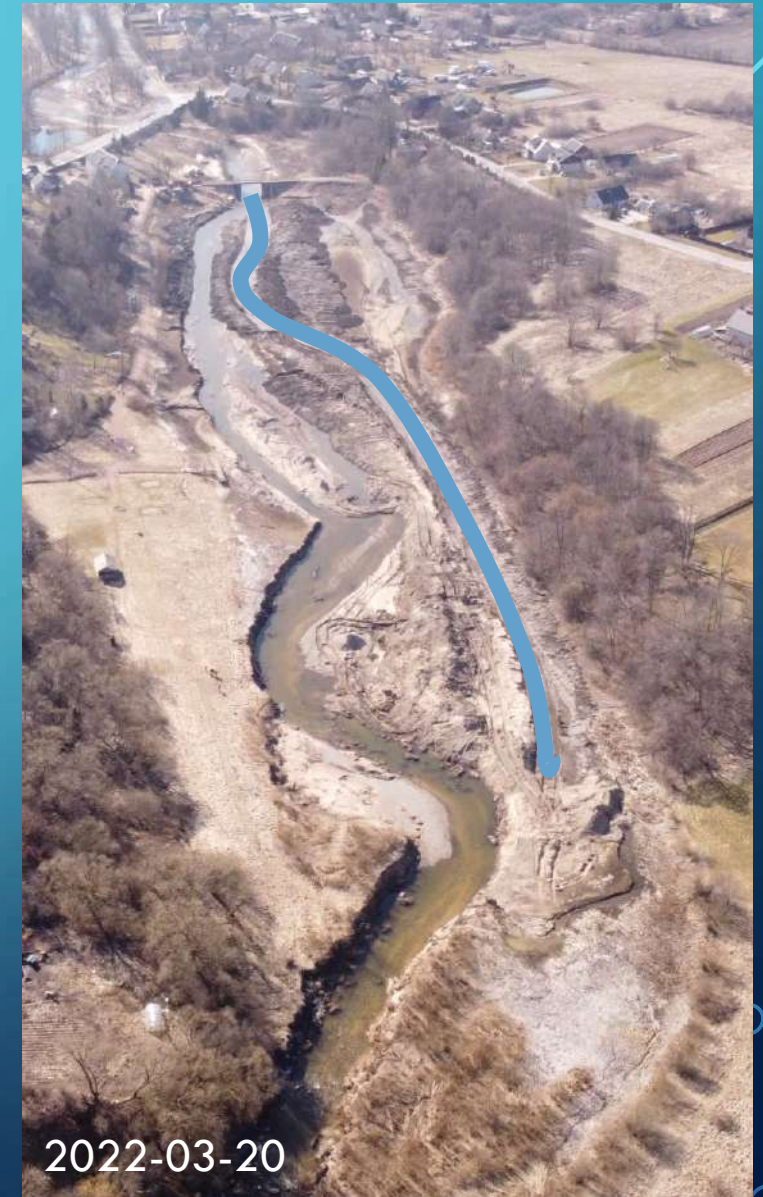


Progress of Salantai dam slipway demolition:



# CONSTRUCTIONS WORKS. THE RECULTIVATION OF POND TERRITORY

Progress of Salantai pond recultivation works:

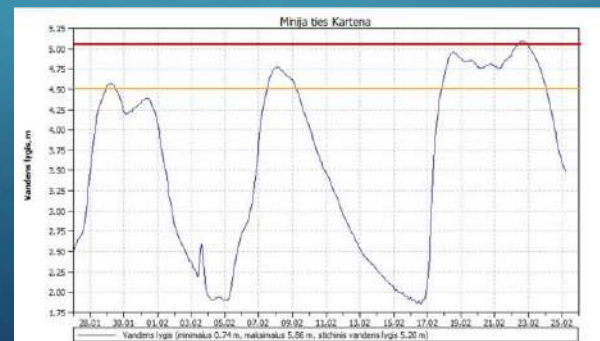


2022-03-20

Challenge: frequent and severe floods, but the contract works were completed on schedule (2022-07-01).



Salanats valley below Salantai, 2022-02-21



# COMPLETION OF CONSTRUCTION WORKS



Salantai dam before construction works, 2020



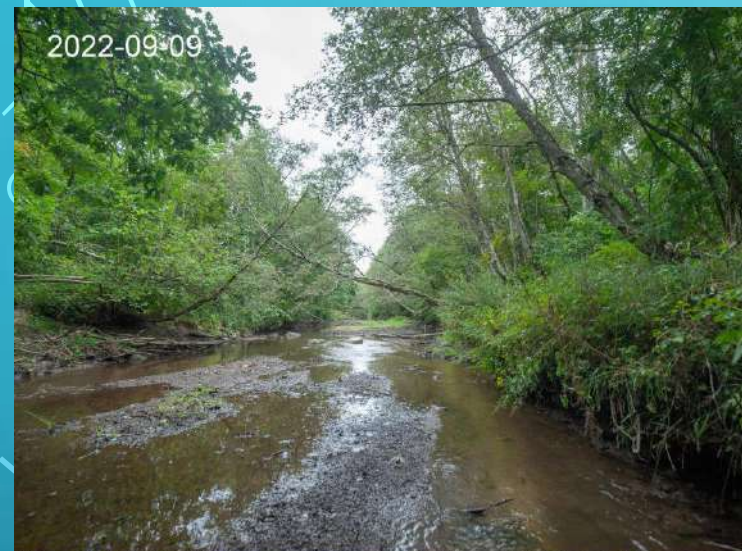
Salantai dam site, after construction works, 2022



Salantai dam site after one year of Project completion, 2023.



# RESULTS: A FAST AND POSITIVE HABITAT CHANGES ABOVE SALANTAI DAM



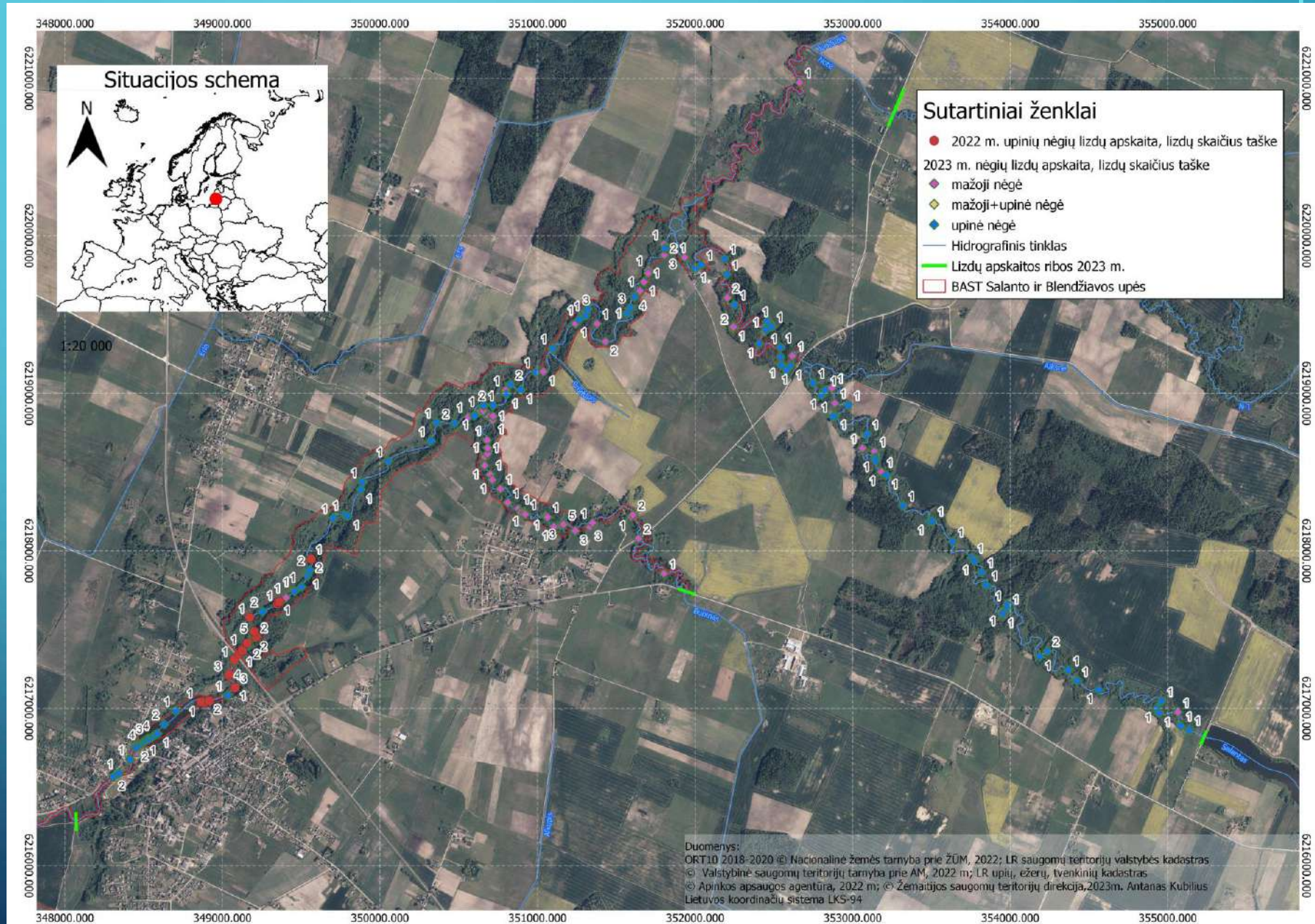
- Before Salantai dam removal Salantas river in 1,5 km section above the dam was in very poor condition (overgrow by non typical vegetation and very simple river bad morphology);
- After removal of the dam, river recovery very fast and in the sediments buried rifles – pool habitats complex reestablished in just in one flooding season!
- Restabament of sediment movement and erosion /deposition process in natural state.



# RIVER LAMPERS RESPONSE TO POSITIVE RIVER CHANGES:

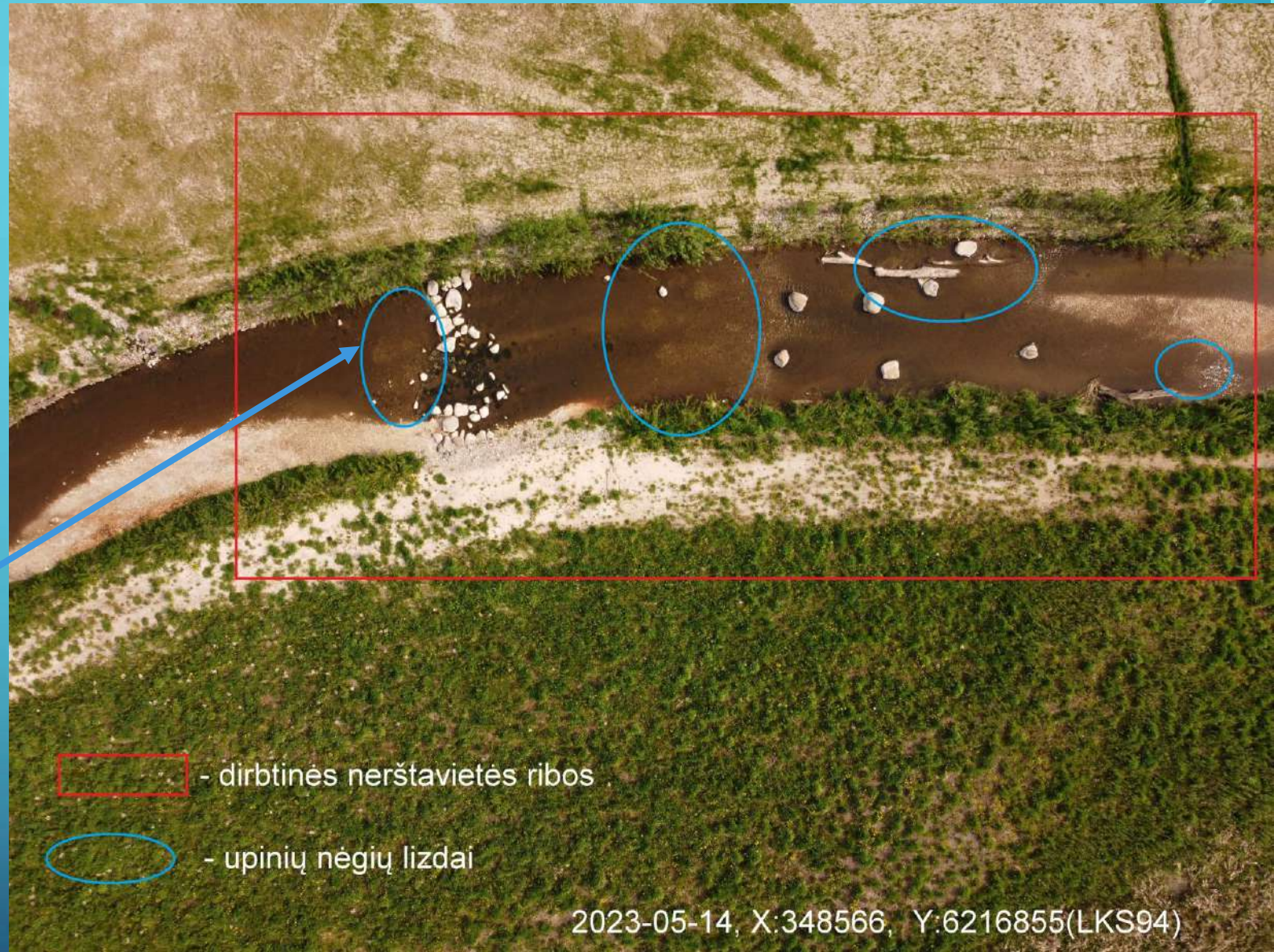


- In 2022 spring, 24 river lamprey nests were recorded in a 1.5 km stretch above the Salantai dam. Density of nests - 16.2 units/km;
- In 2023 spring 149 river lamprey nests were recorded in a 15 km stretch above the Salantai dam (next to Tuzai dam), with a density of 9.4 units per river kilometer;
- River lamprey nests were not found in the tributaries of Bubinnas and Note;
- Criteria for favorable condition for the river lampreys are 10 and more nests in one kilometer of river.



## RESULTS: ARTIFICIAL SPAWNING GROUNDS:

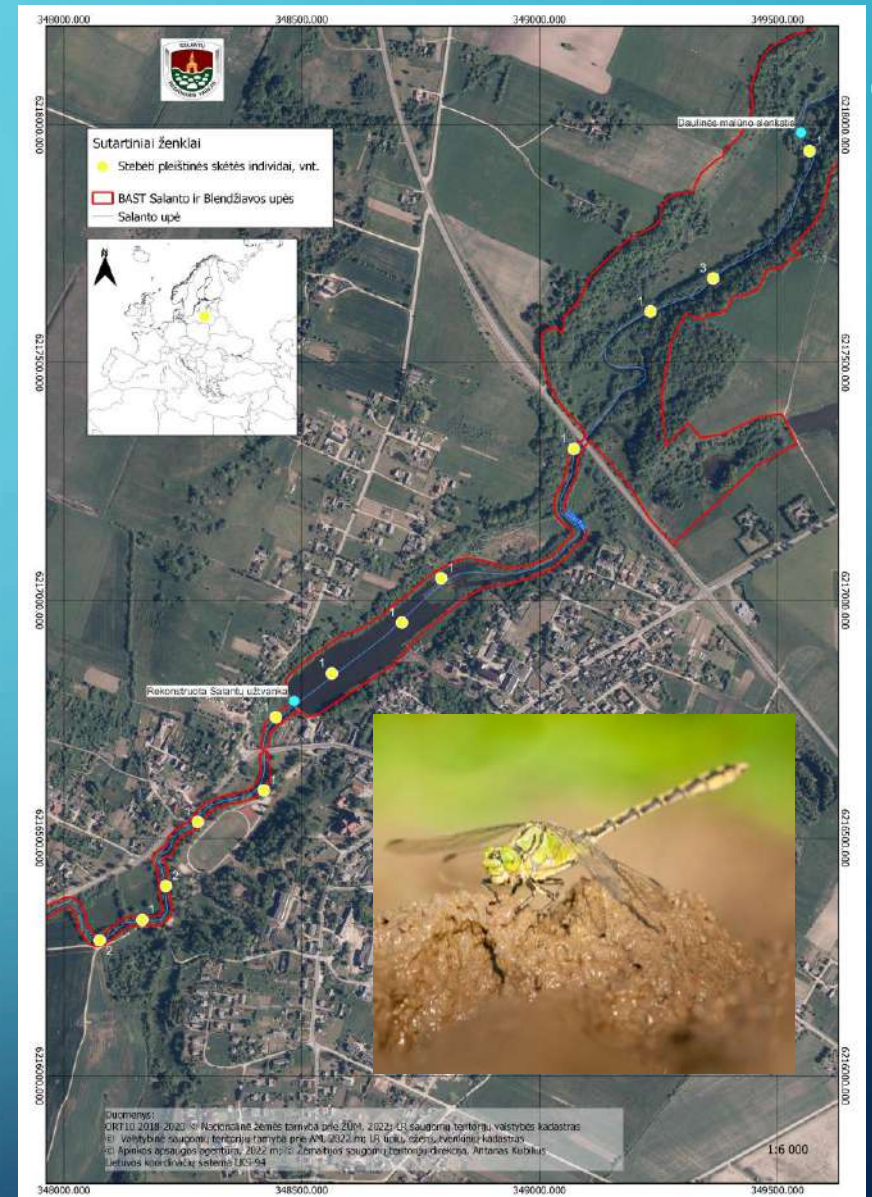
- In first year after completion of Project river lampreys nests density in one kilometer of fully restored Salntas river bad was – 60 units!



# RESULTS: THE UNEXPECTED SURPRISES



Black stork in first days of restored Salantas river become daly visitor in Salnatai town.  
In 2023 spring observed feeding by river lampreys.



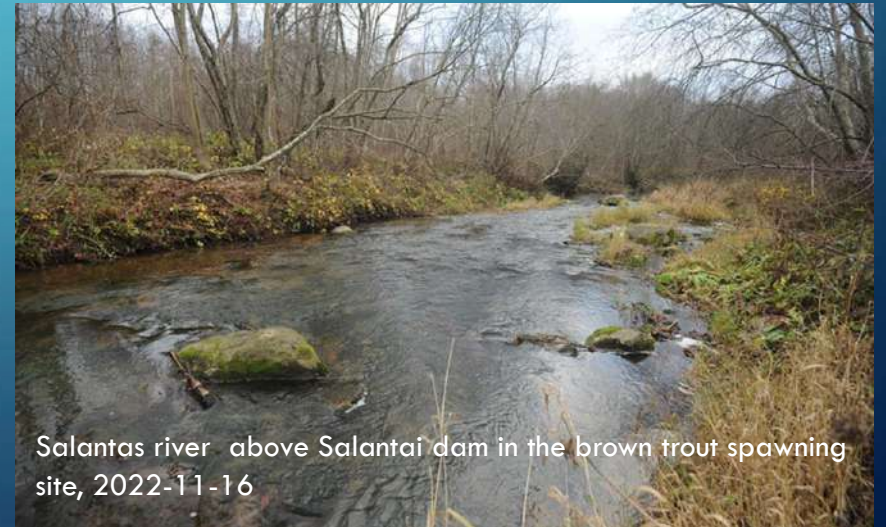
The green snaketail (*Ophiogomphus cecilia*) was never registered in Salinas river, but after dam removal become a frequent dragonfly in Project affected area.

# RESULTS: NO SIGNIFICANT CHANGES IN FISH COMMUNITY STRUCTURE YET

- No sea trout spawning above Salantai dam;
- Brown trout population are stable;
- Increased numbers of chubs, dace minnows, stone loaches and videos;

## Possible reasons:

- Beaver dams and low flow conditions in last salmonid migration season;
- Homing effect (sea trout needs a time to find new spawning grounds).



# COMMUNICATION

- Necessary to use traditional media (radio, TV, local newspapers);
- The ratio of quality to quick response;
- News about Project progress, reached mile stones;
- Live communication (meetings, hikes, conferences and other events);
- Videos about Project:

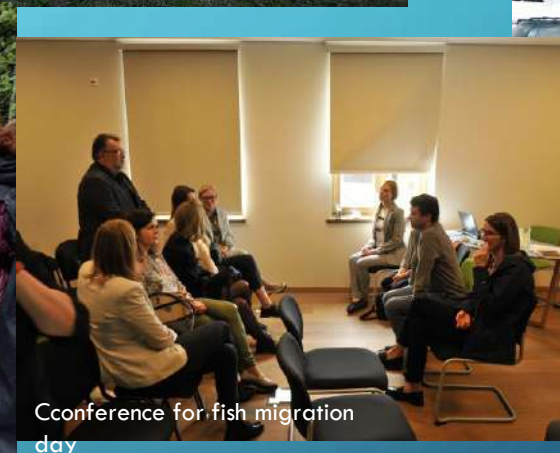
[https://www.youtube.com/watch?v=uvL8Vp1uc8Y&list=PL86xNhqrZiaiy\\_BeJb1Up7\\_jDRbz2FwBw&index=6](https://www.youtube.com/watch?v=uvL8Vp1uc8Y&list=PL86xNhqrZiaiy_BeJb1Up7_jDRbz2FwBw&index=6)



Kids drawings competition „The salmon come back home“ awards



A hike „Upių renacansas“ to celebrate fish migration day



Cconference for fish migration day



Project info presented in farmers market



KU students at Project site



Kids drawings was exposed at Project construction site

# THANK YOU FOR YOUR ATTENTION !



Contacts for more information about Salantai Project:

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