Laboratory for Coastal Systems Study

Представление атласа водосборного бассейна Вислинского залива

Vorstellung des Atlas für das Wassereinzugsgebiet des Wislaer Haffs

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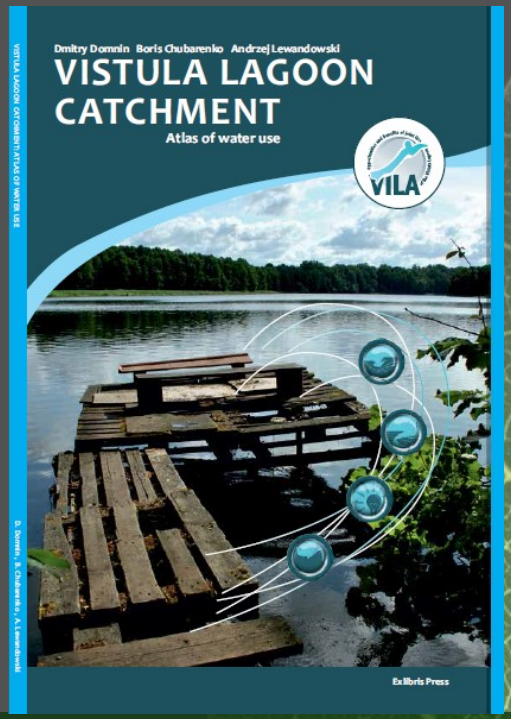
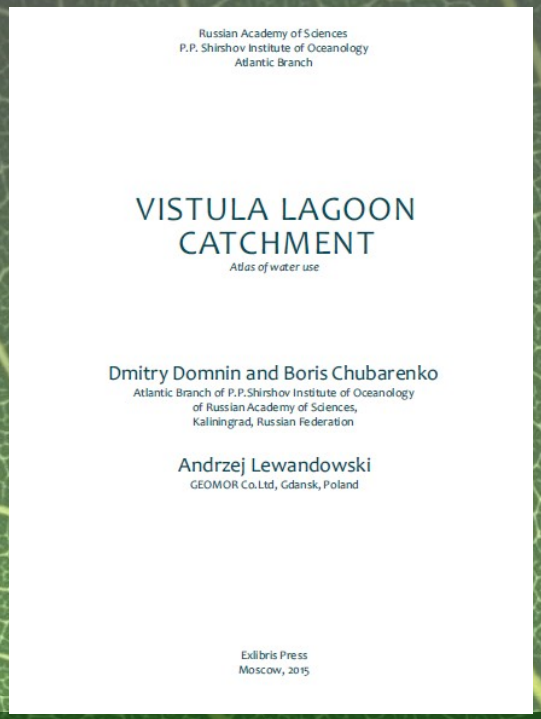
XIII Российско-Германский день экологии в Калининградской области 27 октября 2016 года
13. Deutsch-Russischer Umwelttag im Kaliningrader Gebiet am 27. Oktober 2016





Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Dmitriy Domnin[1], Boris Chubarenko[1], Andrzej Lewandowski[2]

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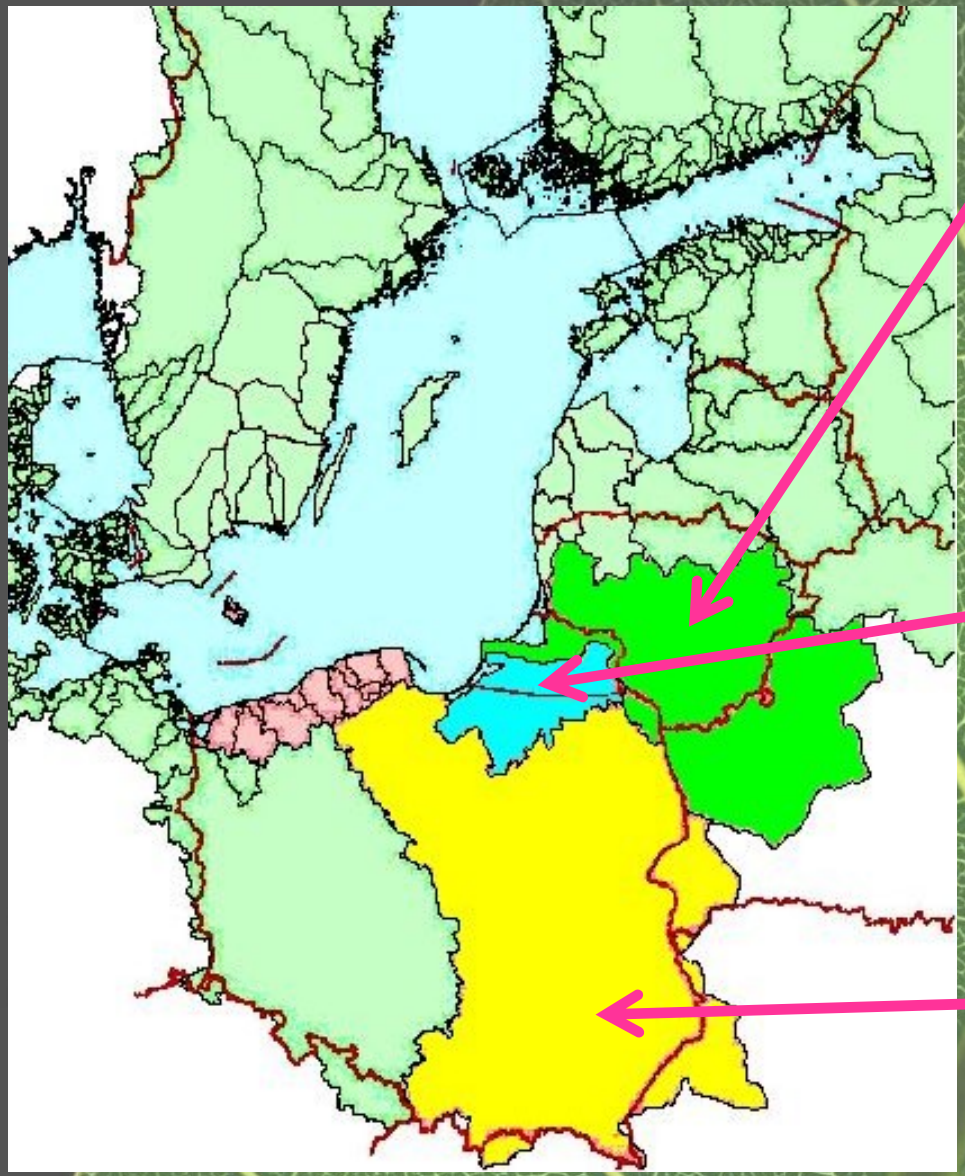
Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Трансграничные водосборы Юго-Восточной Балтики
Transboundary watersheds of the South-East Baltic



Водосбор Куршского залива
Curonian Lagoon catchment (runoff - 23.7 km3/year, main river – the Neman River)

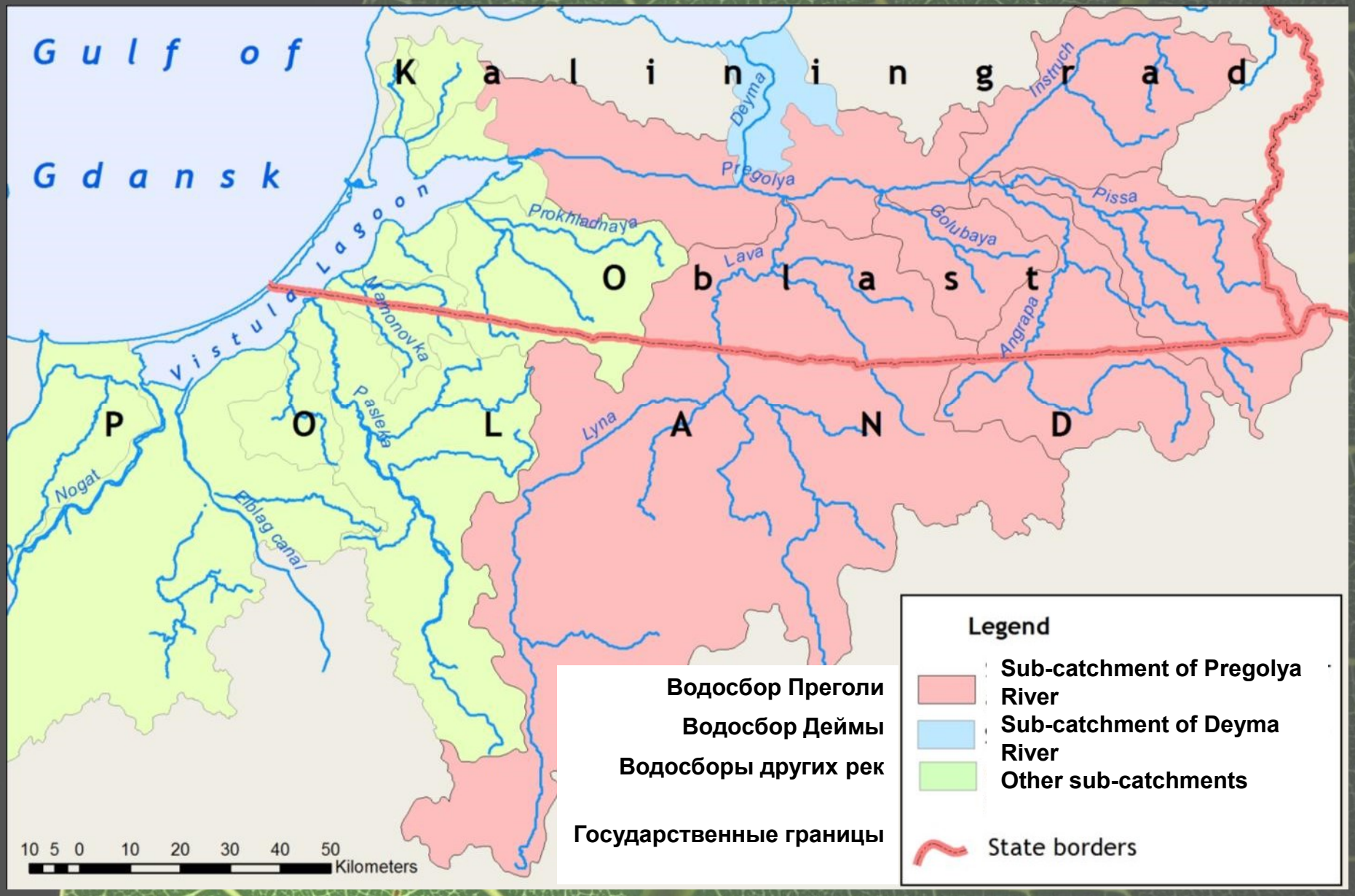
Водосбор Калининградского / Вислинского залива
Vistula Lagoon catchment (runoff - 6.7 km3/year, main river – the Pregolya River)

Водосбор реки Вислы
The Vistula River catchment (runoff - 30 km3/year)

Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Трансграничный водосбор Калининградского/Вислинского залива

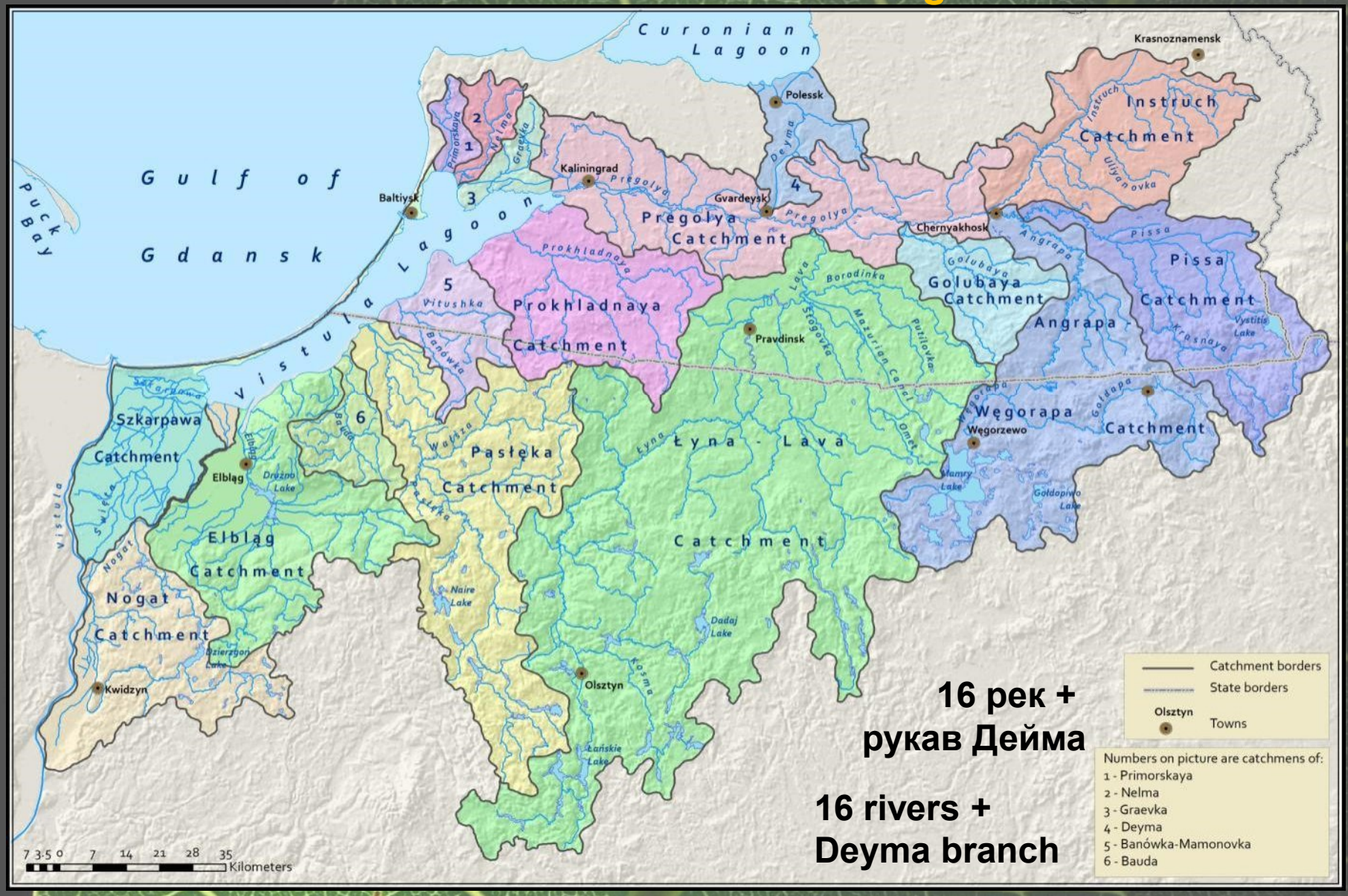
Transboundary catchment of the Vistula Lagoon



Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Частные водосборы рек в пределах водосбора Калининградского/Вислинского залива

River sub-catchments within the Vistula Lagoon catchment



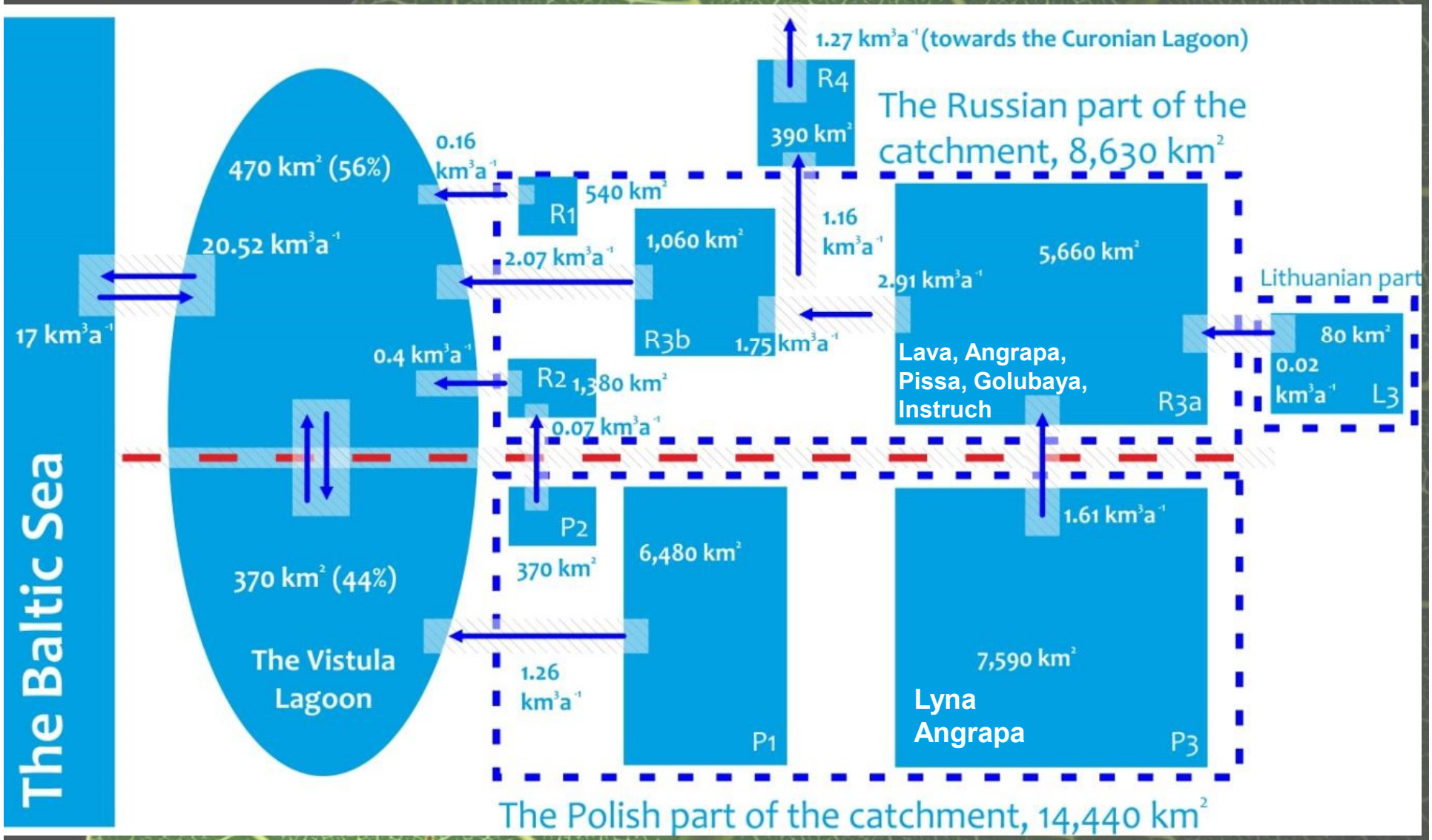
16 рек + рукав Дейма

16 rivers + Deyma branch

Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

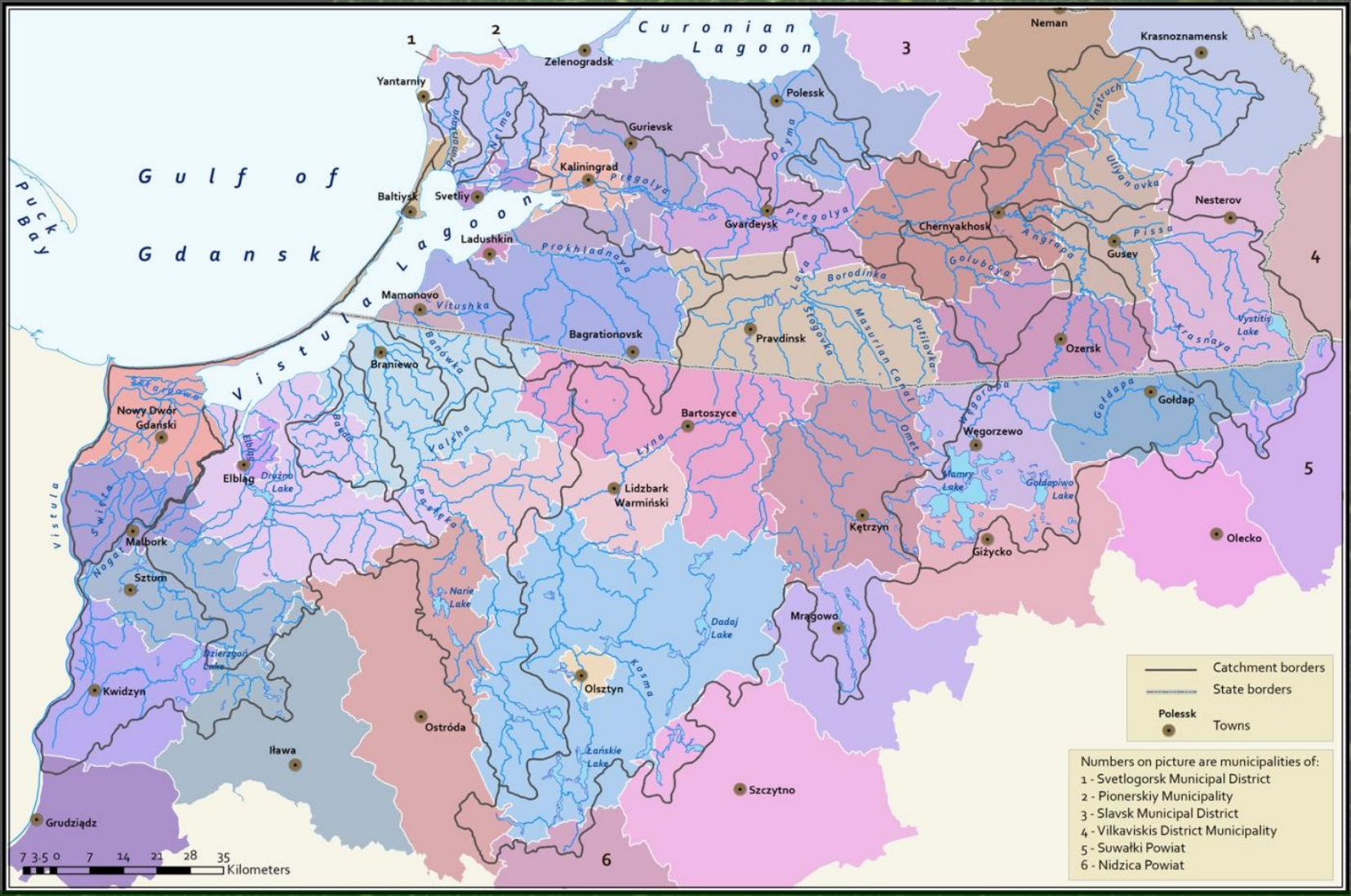
Принципиальная гидрографическая схема национальных частей трангранничного водосбора Калининградского/Вислинского залива

Principal hydrographic scheme of the transboundary shares of the Vistula Lagoon catchment



Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Административные единицы, относящиеся к водосбору К/В залива
Administrative units related to the Vistula Lagoon catchment

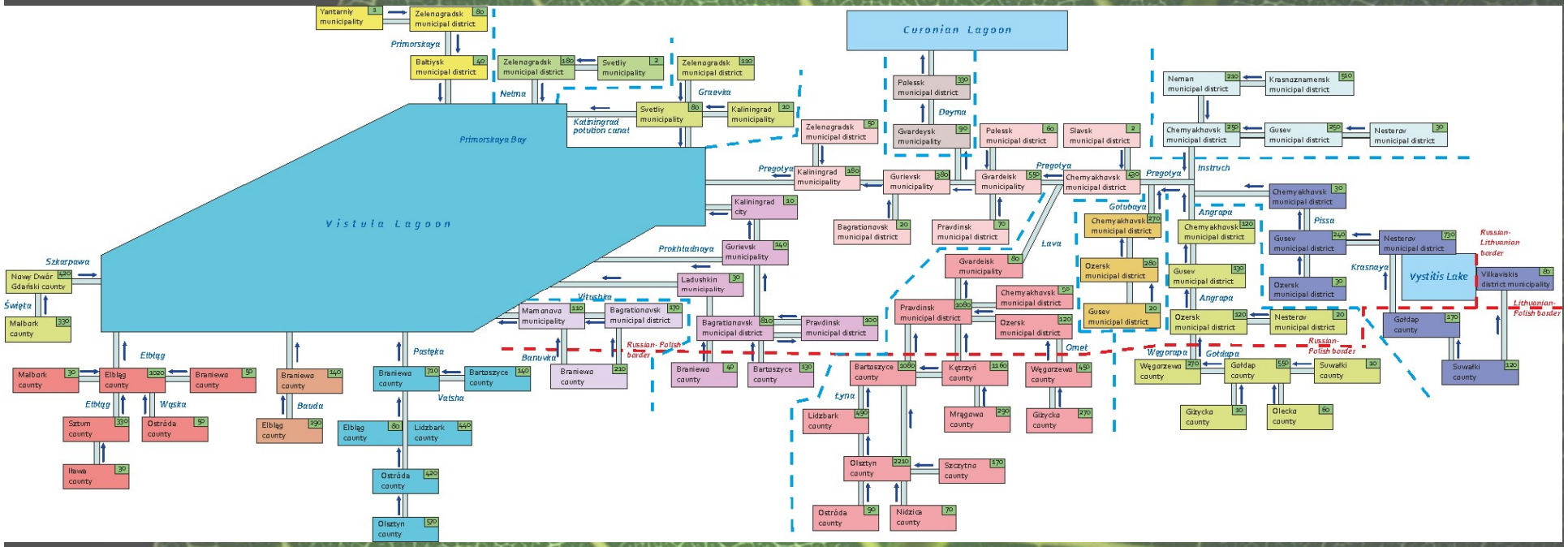


Административные единицы полностью или частично находящиеся в пределах водосбора
Administrative units totally or partly located within the catchment

43 = 19 RU + 23 PL + 1 LT

Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Структурная административно-бассейновая схема
Structural scheme of unit-catchment overlapping



Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Атлас иллюстрирует взаимосвязь территорий муниципалитетов и частных водосборов рек водосборного бассейна Калининградского/Вислинского залива

Atlas illustrate the interrelation in terms of spatial coverage of sub-catchments and administrative units – so-called spatial misfit.

Число частей различных водосборов в рамках одного муниципального образования изменяется:

- **от 1 до 6 для Черняховского муниципального района (Россия)**
- **от 1 до 5 для повята Бранево (Польша)**

В среднем, одно муниципальное образование на российской части водосбора содержит 2.5 частей от частных водосборов разных рек, а на польской – 2 части частных водосборов .

The number of parts of different sub-catchments within the limit of an administrative unit varies between:

- **from 1 to 6 for the Chernyakhovsk Municipal District (Russia)**
- **from 1 to 5 for the Braniewo Powiat (Poland).**

In average a municipal unit in the Russian parts of the Vistula Lagoon catchment comprises from 2.5 parts of diferent sub-basins, and from 2 parts in the Polish part of the Vistula Lagoon catchment.

Presentation of the Atlas: Domnin, D., Chubarenko, B., Lewandowski A. Vistula Lagoon Catchment: Atlas of water use. Moscow: Exlibris Press, 2015. 106 p.

Каждый частный водосбор относится не менее, чем к 2 административным единицам, т.е. является либо международным либо делится административными образованиями в рамках одной национальной территории.

Any river sub-catchment belongs to not less than 2 administrative units, and is shared ether internationally or by national administrative units.

В среднем, каждый частный водосбор делится 5.6 административными образованиями

In average, each sub-catchment is shared by 5.6 administrative units

Максимальное число адм. единиц (15) входит в водосбор реки Лына-Лава. На польской части - это 11 адм. единиц, а на российской части – 4.

На российской части водосбора Калининградского/Вислинского залива максмальное число - 10 адм. единиц находятся в пределах водосбора основного русла реки Преголи.

Maximum units are included in the international Łyna-Lava river subcatchment – 15 ones.

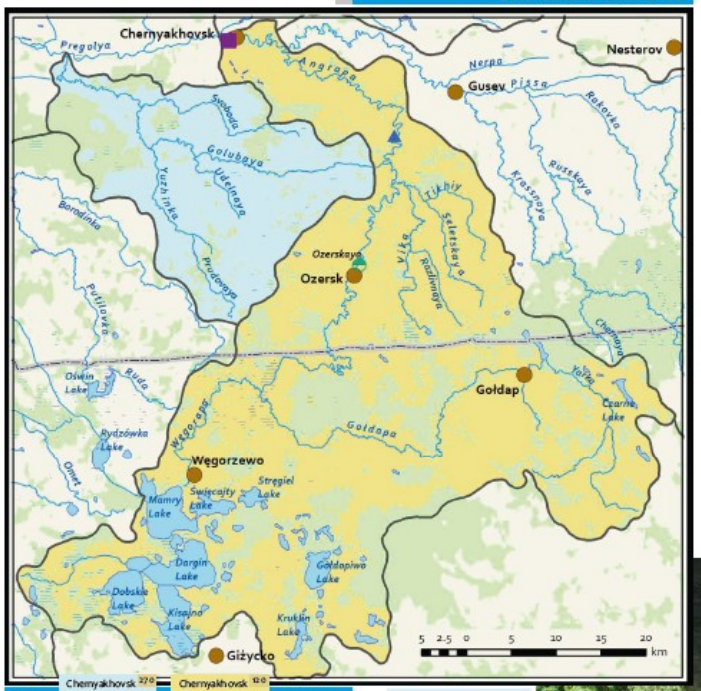
On the Polish side the same Łyna-Lava catchment is mostly shared – by 11 national administrative units.

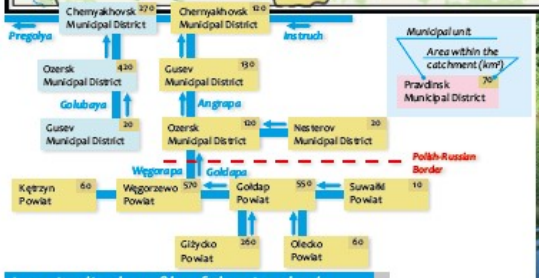
On the Russian side the most shared is the catchment of the proper Pregolya River - by 10 national administrative units.

Часть 3. Речные водосборы. Part 3. River sub-catchments

GOLUBAYA, WĘGORAPA-ANGRAPA CATCHMENTS

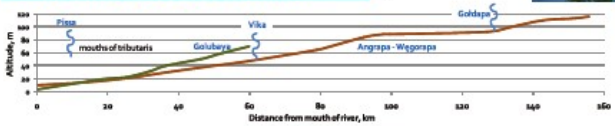
Sub-catchment area






Angrapa River at the Chernyakhovsk Town

Longitudinal profile of the river bed



Description:

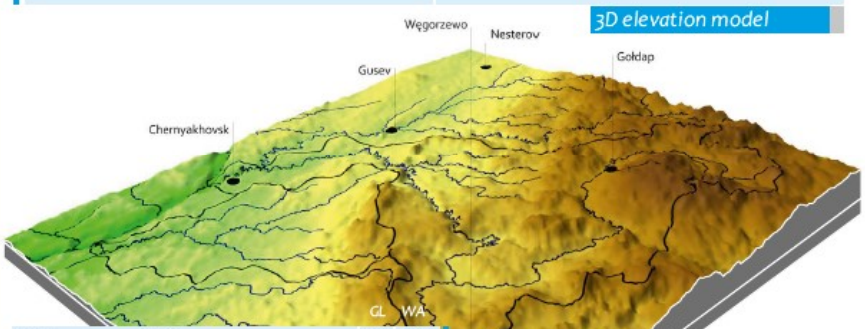
The Węgorapa-Angrapa River is a transboundary water course with a total length of 139.9 km. (44 km within Poland, 95.9 km in Kaliningrad Oblast). Total catchment area equals 3640 km2 (975 km2 in Poland, 2665 km2 in Kaliningrad Oblast). The source of the river (it flows out of Lake Mamry) is close to Węgorapa village in Poland near the town of Węgorzewo at 116 meters AMSL. The river is called the Węgorapa on the Polish side and the Angrapa on the Russian side of the catchment.

The Węgorapa-Angrapa River gives rise to the Pregolya River merging with the Instruch River downstream of Cherniakhovsk. The main tributaries of Węgorapa-Angrapa River are Goldapa (in Poland) and Pissa (in Russia), which merge with Angrapa at a distance of about 127 and 14 km upstream its mouth.

The Węgorapa Rriver valley is formed as flat and ridged floodplain with sand and gravel and peaty under willow, alder, floodplain meadows. The Angrapa River flows between small hills with meadows and mixed forest around, and has two-sided floodplain. The stream is very intensively meandering, rooted vegetation is well developed during summer time, bottom sediments are formed by sand and pebble, partly from stones. The banks are steep and covered by bush and forest. Sometimes the river has rifts (e.g. in the settlement of Berestovo). The Węgorapa-Angrapa River doesn't dry up, it is covered (but not blocked) by ice in winter.

The main towns along the river course include Węgorzewo in Poland (population is of 12 ths inh.), as well as Ozersk (4.4 ths inh.) and Chernyahovsk (40 ths inh.) in Kaliningrad Oblast (Russia). There is one hydraulic power plant located in Ozersk. A monitoring point of the Russian State Monitoring System is located 30 km upstream the river mouth within the settlement of Berestovo. There are two monitoring stations of the Polish State Monitoring System located in Mieduniszki and Węgorzewo (98 and 153 km upstream the river mouth), the first one is close to the state border.

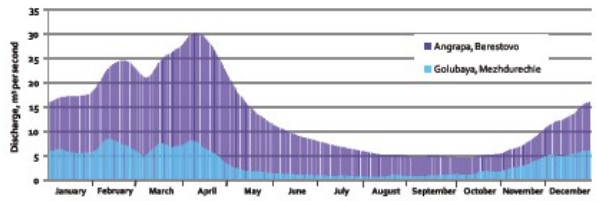
3D elevation model



	GL	WA
Catchment area (km²)	570	2200
Catchment area within Russia (Kaliningrad Oblast) (km²)	570	690
Catchment area within Poland (km²)	0	1510
Average slope of the catchment (m/km)	1.5	2.26
Minimum altitude in the catchment (m AMSL)	4	9.5
Maximum altitude in the catchment (m AMSL)	166	309
Hydrological station (river/station name)	WA-Ozersk, Berestovo, Jurkiszki, Meduniszki, Węgorzewo	

GL - Golubaya River
WA - Węgorapa-Angrapa River

Longterm mean water discharge of the Angrapa river (Berestovo)



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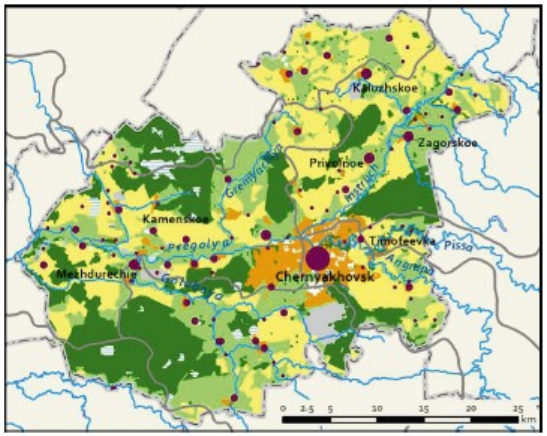
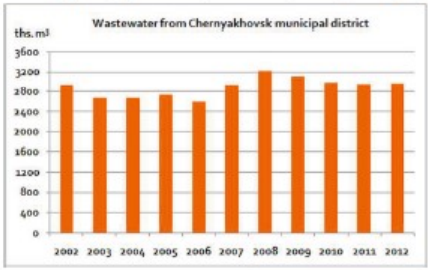
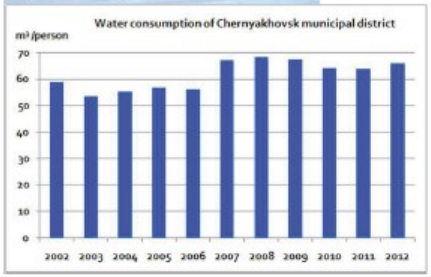
Части 4 и 5. Административные единицы. Part 4 and 5. Administrative units.

CHERNYAKHOVSK MUNICIPAL DISTRICT

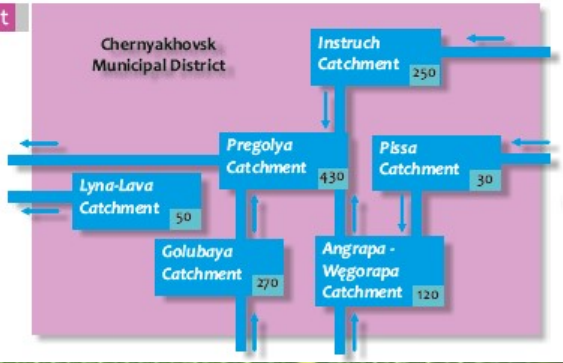




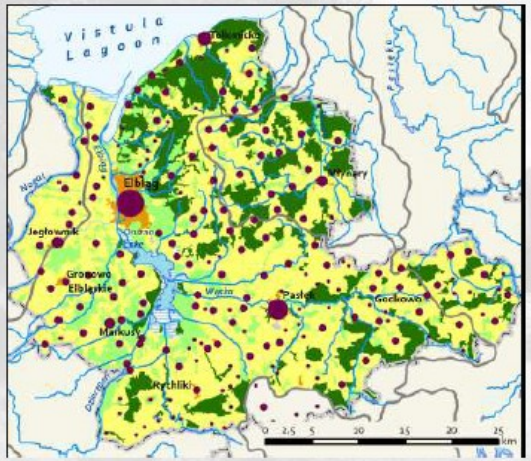


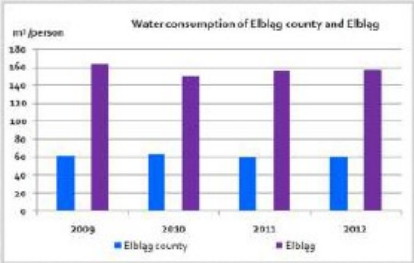
Description of the municipal unit

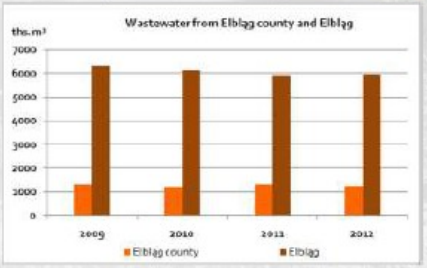
Chernyakhovsk Municipal District is crossed by Instruch, Pissa, Angrapa and Golubaya rivers. Total population (by 01.01.2014) is of 49.2 ths. of inh., 37.9 ths. ones live in the City of Cherniakhovsk, which will be facilitated in 2015- 2016 by waste water treatment of capacity of 25 ths. m3 per day. Rural population is equal to 11.3 ths. of inh., two main rural settlements are Privolnoe (0.5 ths.) and Mezhdurechje (0.5 ths.).



ELBLĄG POWIAT & ELBLĄG CITY

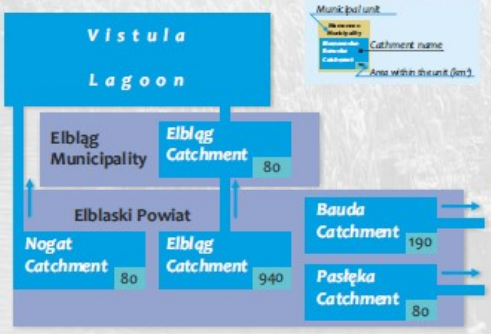






Description of the municipal unit

Powiat Elbląski belongs to Warmińsko-Mazurskie Voivodship. Its area covers the most part of the Elbląg River catchment. Its total population (by 30.06.05) is 56.4 ths. (16.8 ths. - in cities, 39.6 ths. - in villages). It is composed of urban-rural gminas of Młynary, Paslęk, and Tolkmicko (there are no urban gminas in the powiat); rural gminas of Elbląg, Godkowo, Gronowo Elbląskie, Markusy, Milejewo, and Rychliki. The main cities Młynary (1.9 ths.), Paslęk (12,45 ths.), and Tolkmicko (2.8 ths.) are facilitated by WWTPs (MB).
The city of Elbląg (treated as powiat) has 124.4 ths. inh. and is facilitated by a WWTP (MB).



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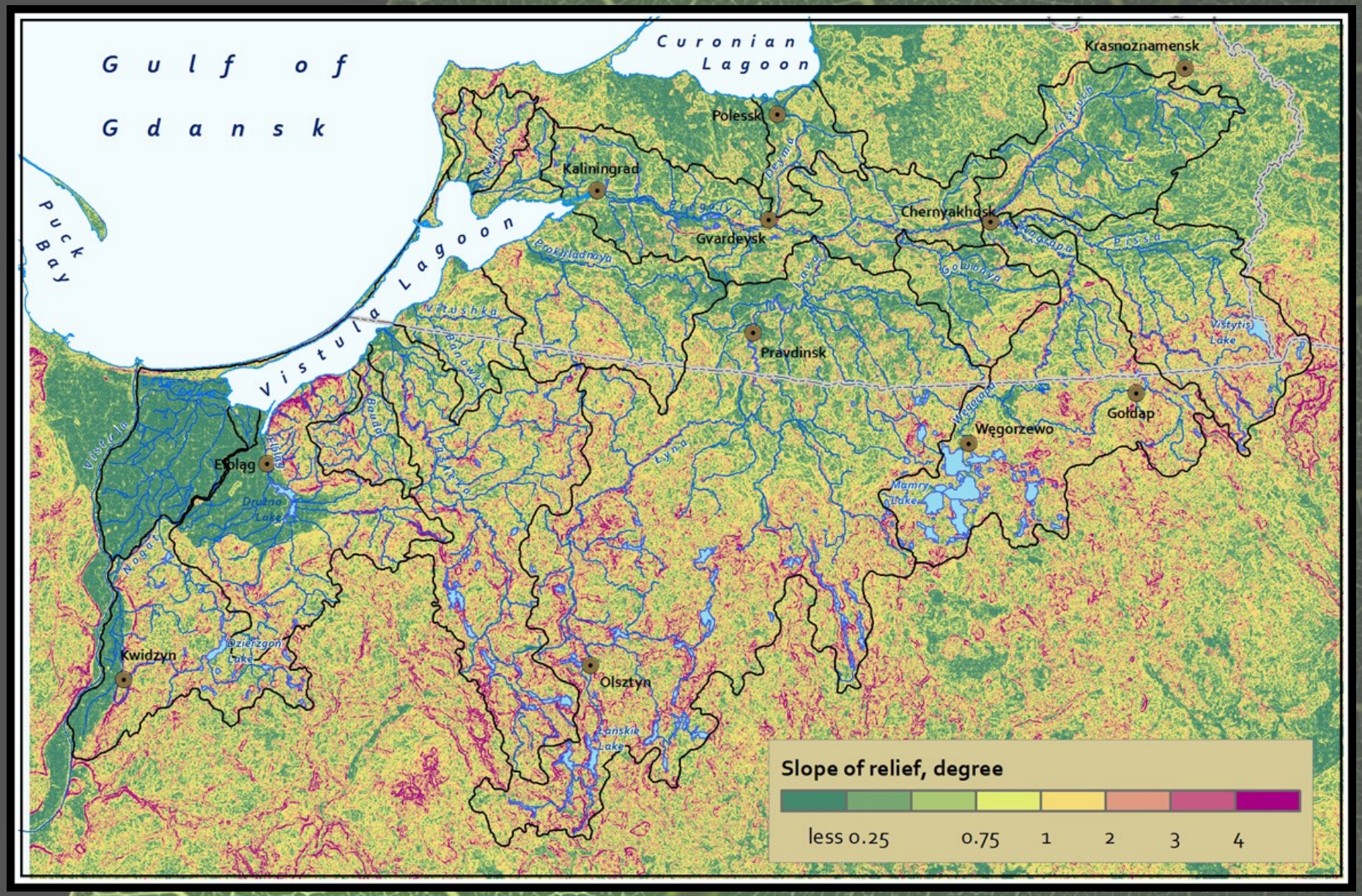
Уклон рельефа Slope angle of relief



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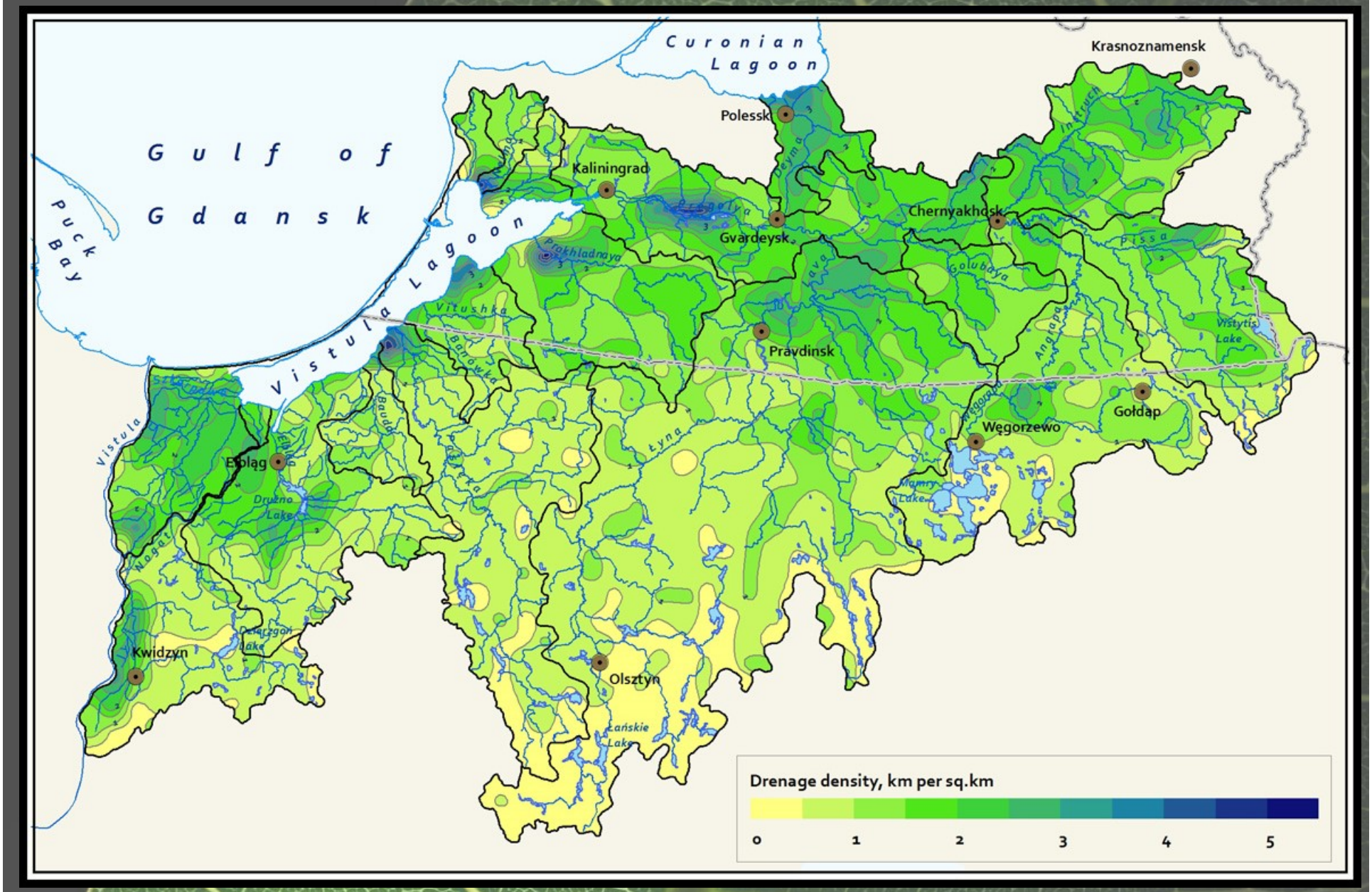
Плотность речной сети Drainage network density



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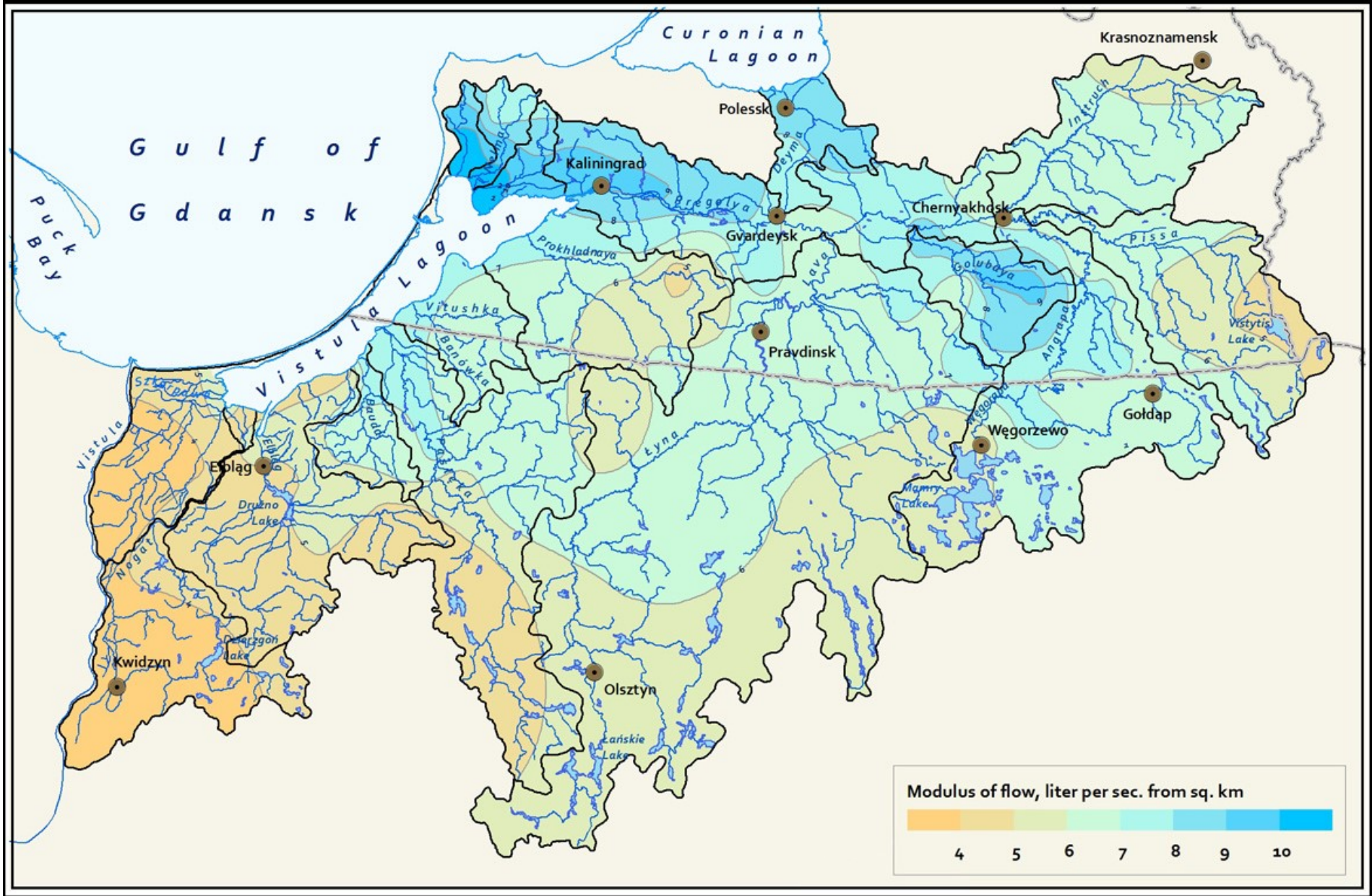
Модуль стока (литр/сек/км2) Specific discharge (liter/sec/km2)



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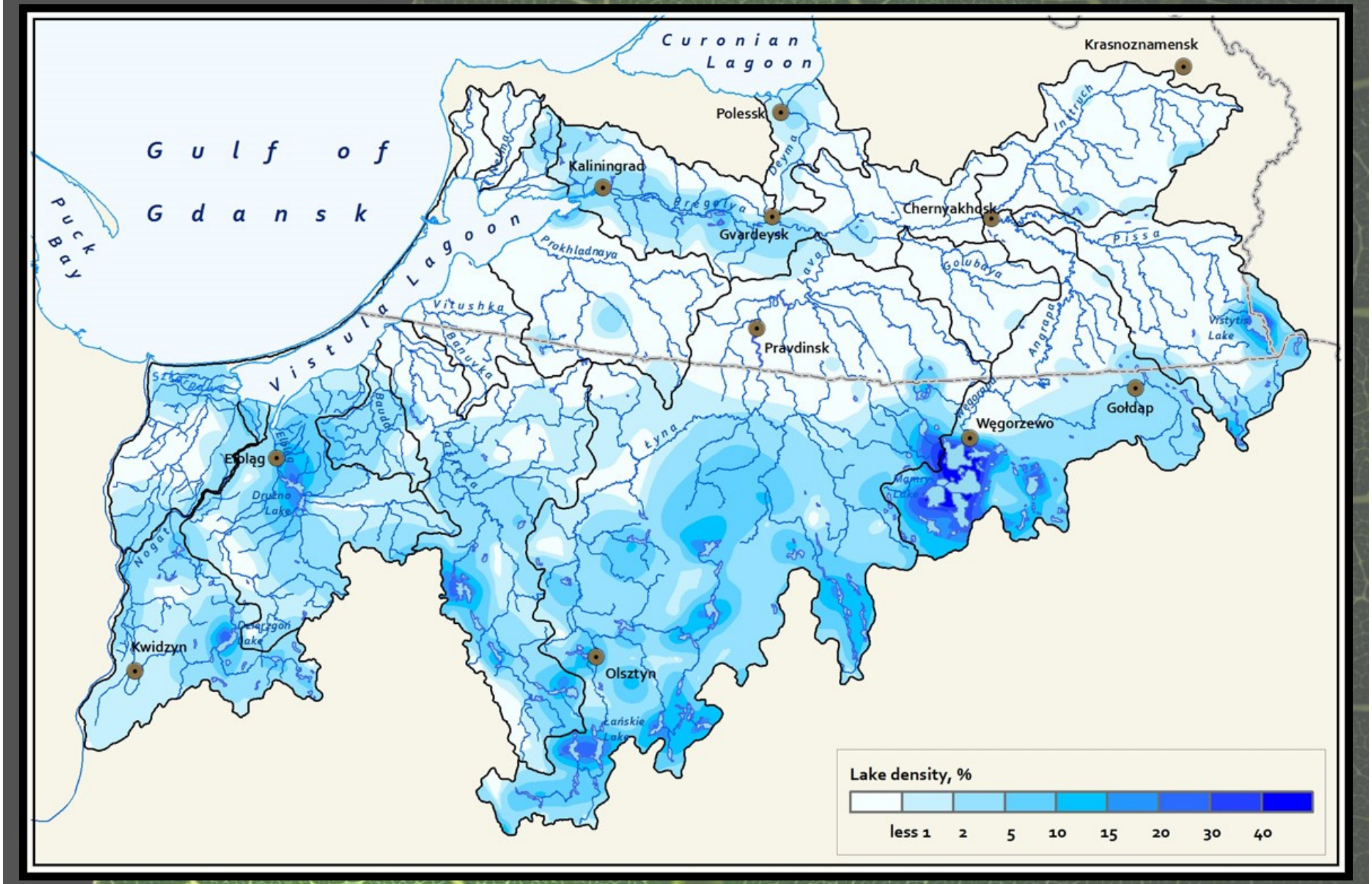
Плотность озер и водохранилищ (%) Lakes and ponds density (%)



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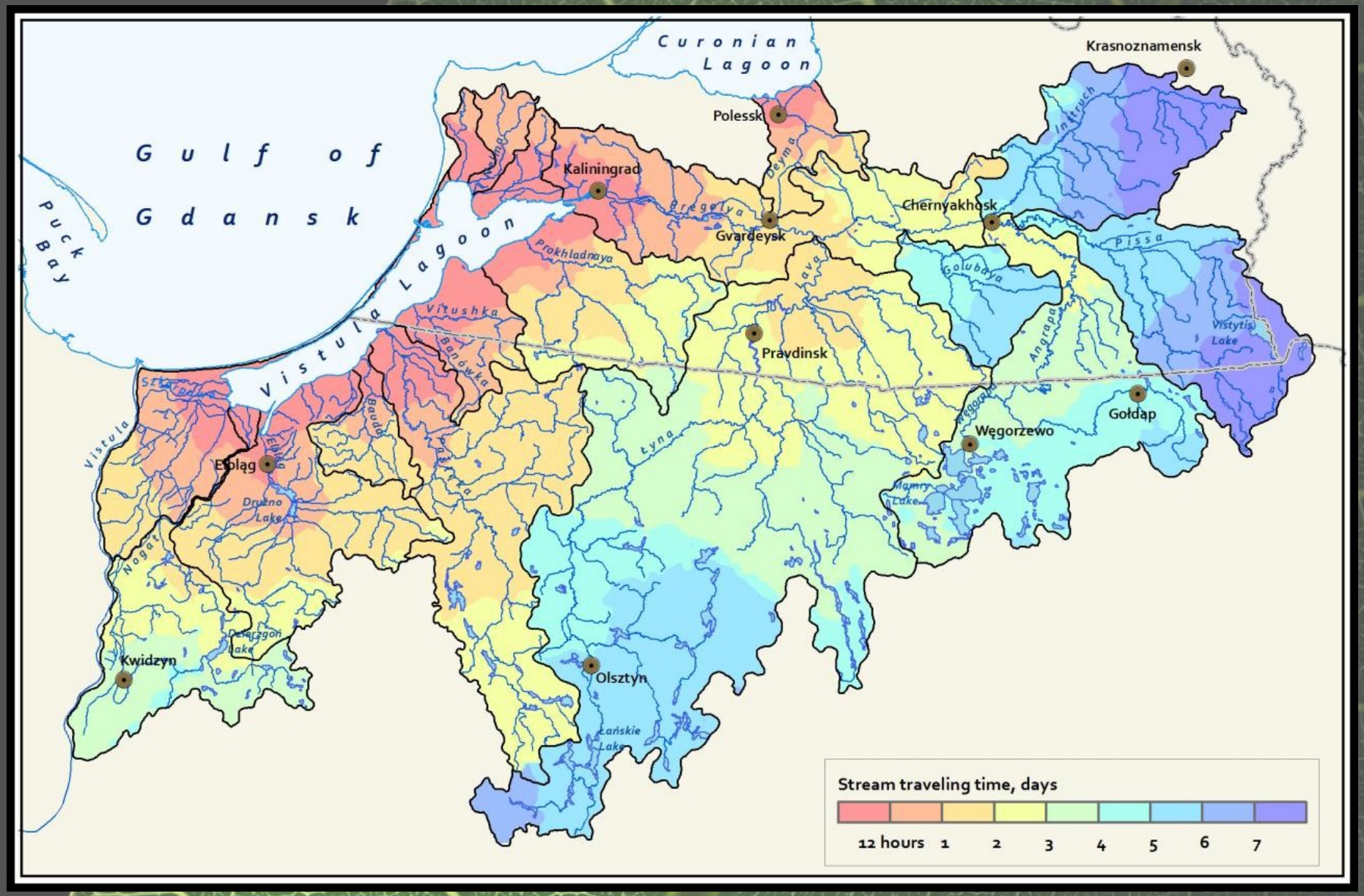
Среднегодовое время стока (дни) Stream travel time (annual average)



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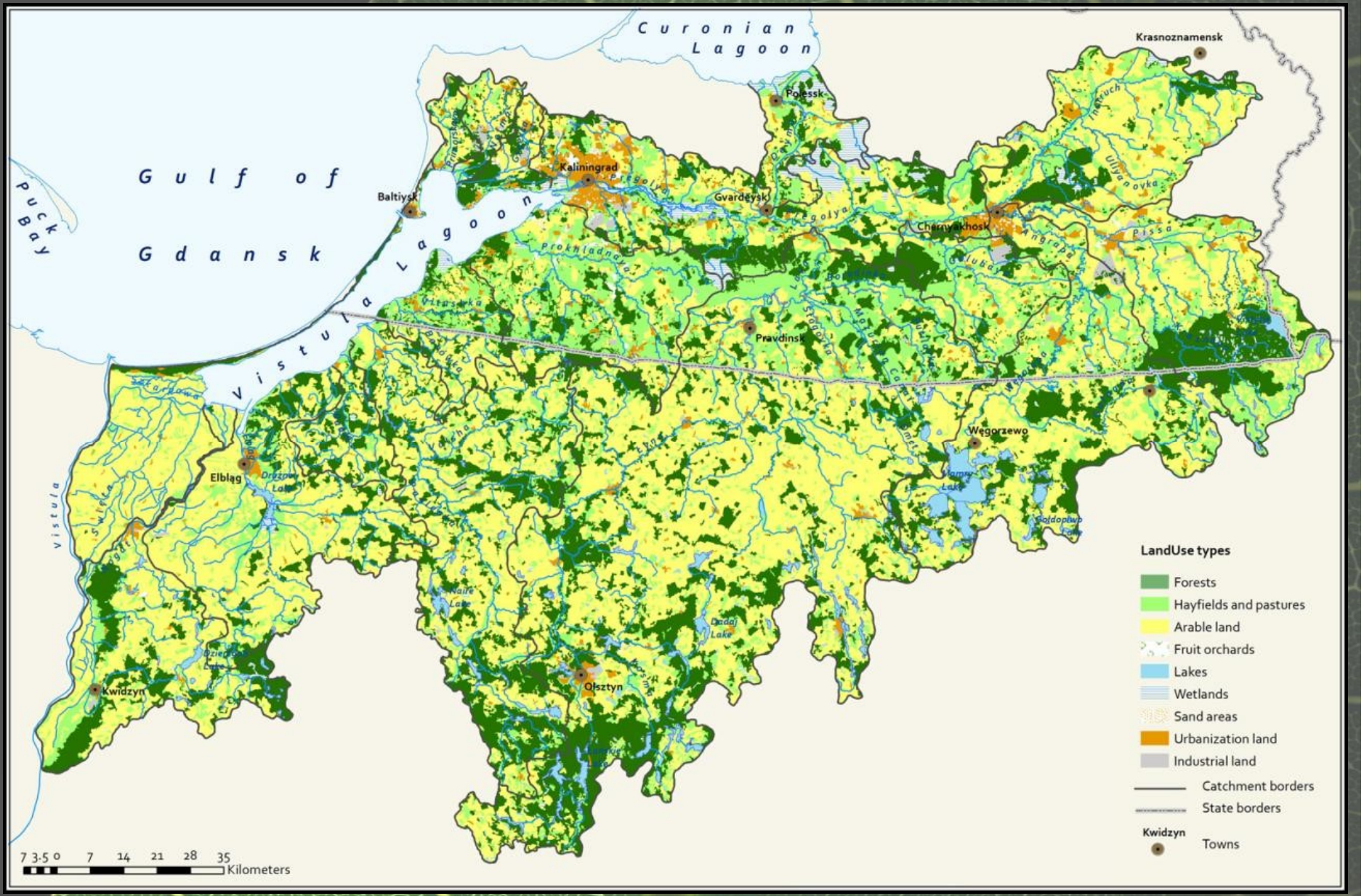
Землепользование Land use



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Thank You for Your attention!

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