



Sources of eutrophication of the Neva bay/Gulf of Finland from St.Petersburg and NGO vision of possible solutions

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Ладожское оз.
Lake Ladoga

Наумая канал

Санкт-Петербург
St. Petersburg

Охма
Ohta

Нева
Neva

Ковыши
Kovaishi

Воронка
Voronka

Систа
Sista

Ижора
Ijora

Мга
Mga

Тосна
Tosna

Наумая
Naumaa

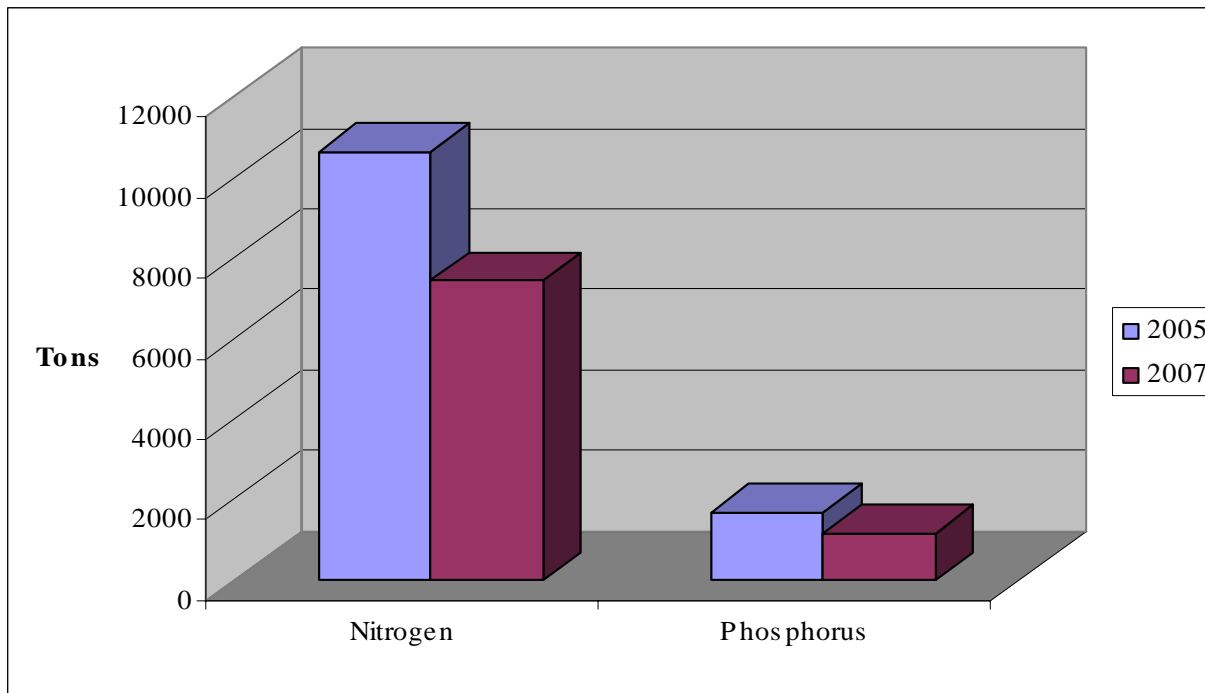
Волхов
Volhov



St.Petersburg:
3 industrial
sources,
8 municipal
sources.

Amount of Nitrogen and Phosphorus in wastewater of St.Petersburg

St.Petersburg per year 2005, 2007 (data of Vodocanal)



Including housing sector 85%
+ Agriculture
N - 1400 tons
P - 300 tons



Nitrogen in Neva bay

- Neva bay - max in the South-Eastern part – average **20 µg/l**;
- Strelna, Petrodvorets, Lomonosov, Sea Port of SPb - up to **390 µg/l**;
- In the area of discharge of Central and Northern WWTPs in the warm season - total Nitrogen up to **700-800 µg/l**;
- Coastal area - higher concentration by 25-27% ;
- Winter concentration > Summer one by 3-11 times;
- **Extremal concentrations** - 2-3 times more than permissible level.



Phosphorus in Neva bay

St.Petersburg wastewater gives 65% of P load to the Gulf of Finland

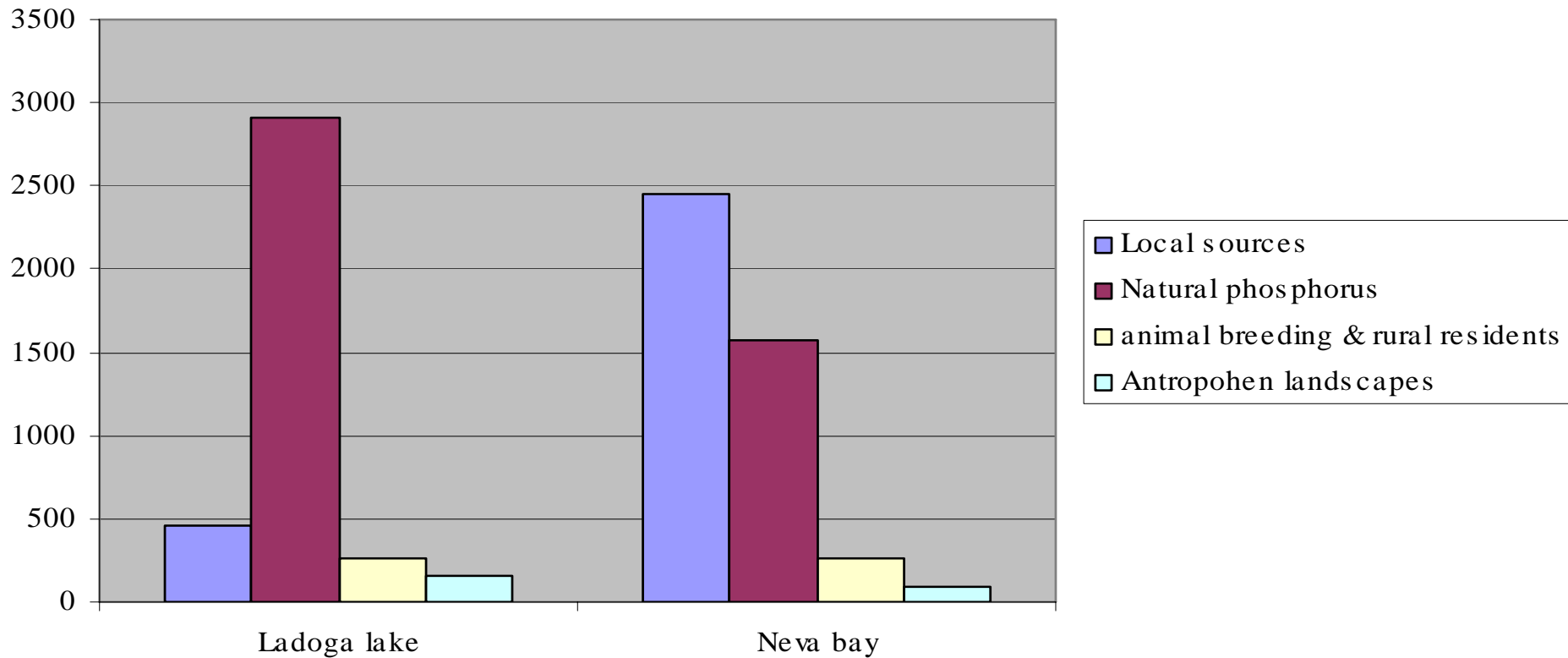
Total concentration of P in Neva Bay is 37,2 $\mu\text{g/l}$

Total P load is 4373 tons/year (56 % local, 6 % distributed agricultural, 38 % distr. others)

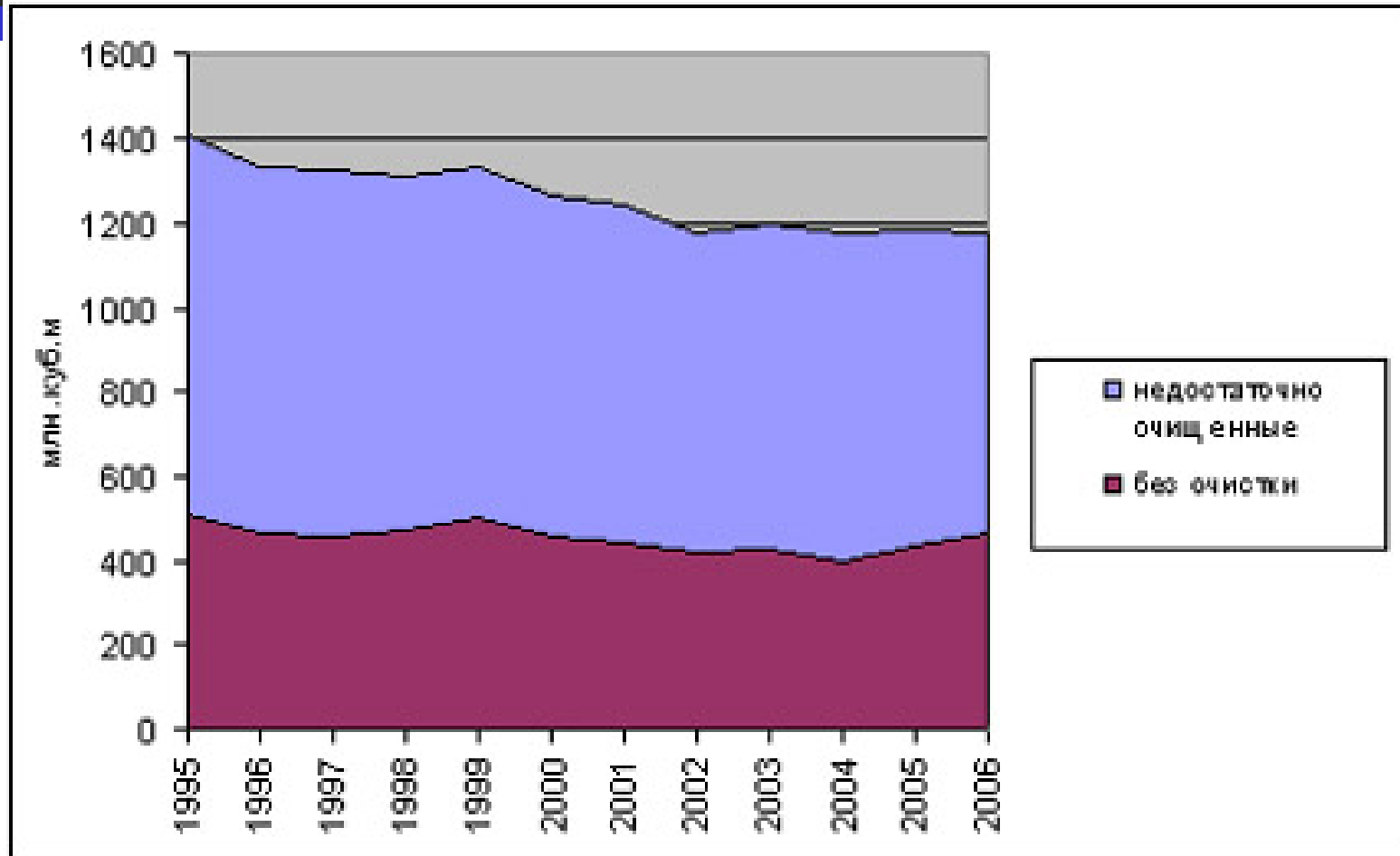
Plan for 2020:

P - 30,3 $\mu\text{g/l}$ (reduction by 19 %)

Total Phosphorus in Neva Bay and Ladoga lake



Wastewater of St.Petersburg - data of Neva-Ladoga basin Department





Wastewater treatment in St.Petersburg

Central WWTP: 1,5 mln m³ per day

Northern WWTP – 1,250 mln

5 local district WWTPs – 0,0042 mln

Southern WWTP (2005): 0,330 mln

Total SPb

3,084 mln m³

+ SPb suburbs 0,34 mln m³

TOTAL SPb + subburbs

3,424 mln m³

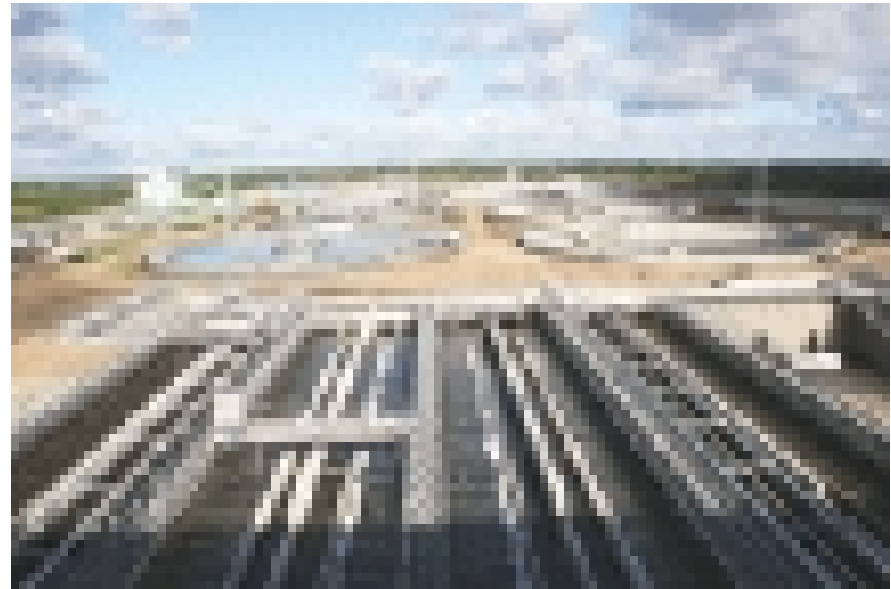
Official data:

2007 – 85 % of St.Petersburg wastewater are treated.

Wastewater treatment in St.Petersburg

**South-West WTP (since
Sept 2005) capture
per year:**

- Suspended matter –
21 000 tons,
- General Phosphorus –
520 tons,
- Nitrogen – 3200 tons,
- Organic pollutions
23 000 tons.





Wastewater treatment in St.Petersburg - prospects

HELCOM recommendation:

Total phosphorus in effluent – up to 1,5 mg/l

Vodocanal target for phosphorus - **0,5 mg/l**
at all city waste water treatment plants
by 2009.

It promises to secure reducing of P concentration
in the Gulf on 24%



Wastewater treatment in St.Petersburg - prospects

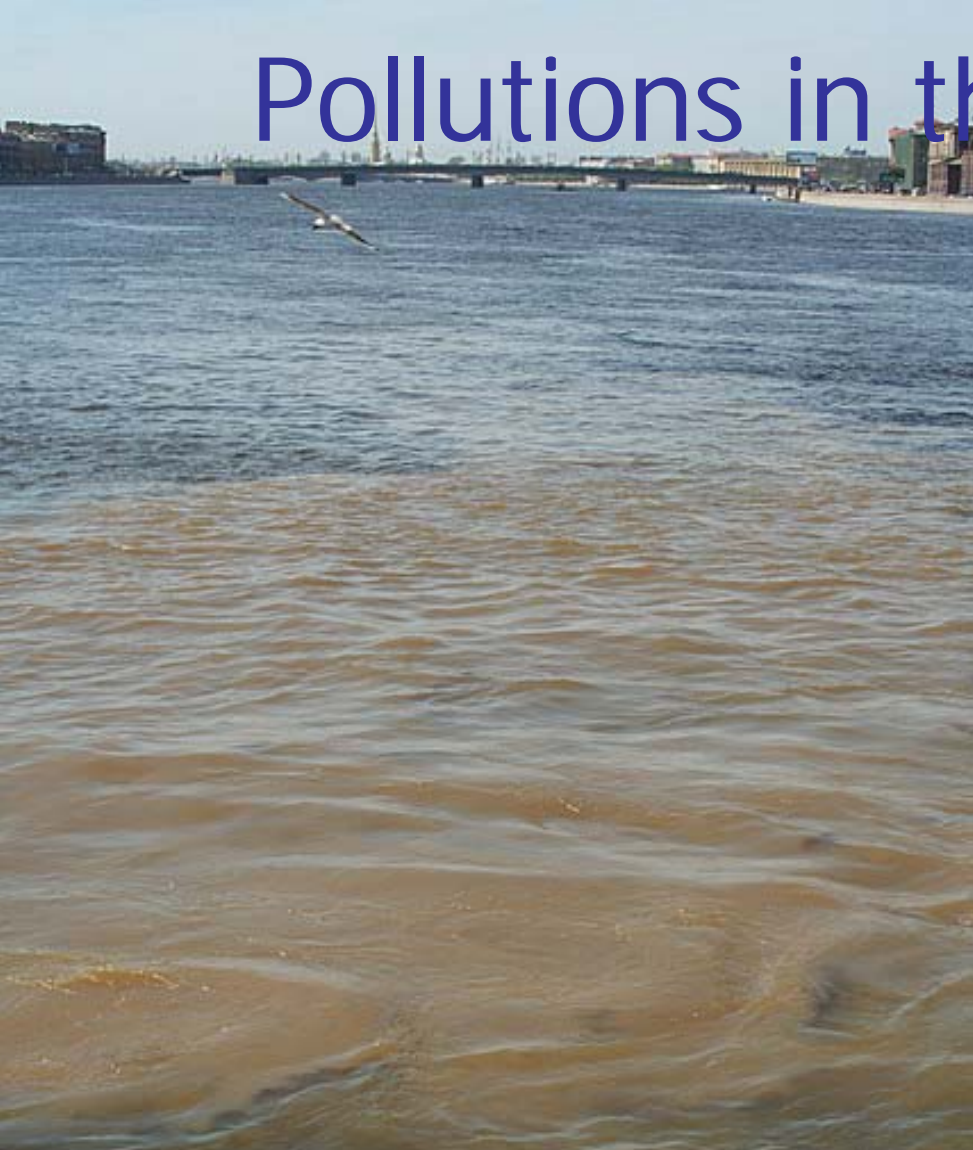
St.Petersburg program "Prevention of untreated effluents to the water bodies of St.Petersburg:

- Finishing construction of main waste water collector for Northern part of the city to 2012;
(chairman of Vodokanal promises 2010 instead 2012, 95-97 % treatment according to the world standards);
- It will help to **reduce amount of biomass** in the Eastern part of the Gulf of Finland **by more than 60 %;**

Wastewater – non-registered sources in St.Petersburg



Pollutions in the Neva river

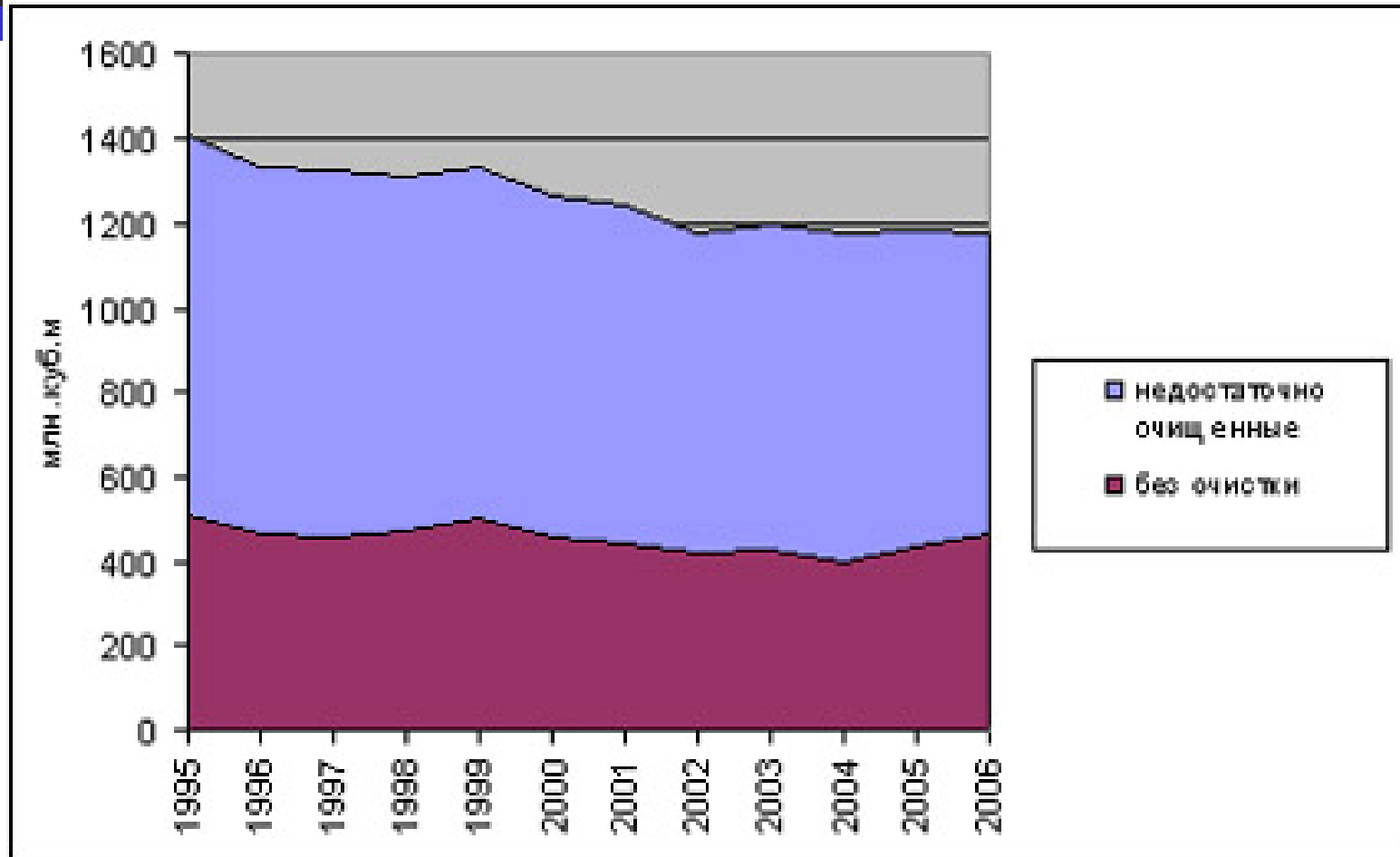


Data of Rus Hydro Meteorology Committee

	2005 год	2006 год
Нева (ниже впадения р. Тосны)	3а	3б
Нева (ниже впадения р. Ижоры)	3б	3б
Нева (ниже впадения р. Славянки)	3б	3б
Нева (ниже впадения р. Охты)	4а	3б
Нева (Литейный мост)	3а	3а
Большая Нева	3а	3а
Малая Нева	3а	3а
Большая Невка	4а	4а
Малая Невка	3а	3а
Мга	4а	Н/д
Тосна	4а	Н/д
Ижора	3б	3б
Славянка	3б	4б
Охта	4а	4а
Обводный канал	3а	4а
Фонтанка	3а	3б
Мойка	3а	3б
Карповка	3а	3б
Черная речка	3б	4а
Ждановка	3б	3б

Класс	Характеристика	
1	Условно чистая	
2	Слабо загрязненная	
3а	Загрязненная	
3б	Очень загрязненная	
4а	Грязная	
4б	Грязная	
4в	Очень грязная	
4г	Очень грязная	
5	Экстремально грязная	

Wastewater of ST.Petersburg data of Neva-Ladoga basin Department





NGO vision – what to do?

- Promotion of environmentally friendly wastewater technologies – *information and education for local municipalities, local business, farmers, individuals in the rural areas;*
- Saving water resources – *informational work for housing sector, citizens;*
- “Green consumerism” – *avoiding products with high P and N concentration – information & education for general public.*
- Promotion of environmentally friendly national legislation.



NGO vision – what to do?

Developing NGO projects and programs in St.Petersburg and Leningrad region:

- **River Watch** long-term program of Friends of the Baltic NGO and its networks: *schoolchildren river monitoring, public participation, promotion of SRBM*;
- Environmentally friendly **eco-toilets** for single houses and local communities – Center for Environmental Initiatives projects;
- Promotion of **Green Consumerism** – FB & CEI;
- **Baltic Sea informational campaign** 2007-2008 (focus on phosphates);
- **Ecocentrum exhibition.**

Thank you for your attention!



Welcome to St.Petersburg Ecocentrum

Friends of the Baltic, Centre for Environmental Initiatives, TEIA