

Workshop on Transboundary Water Resources Management in Central Asia
Almaty, Kazakhstan, 13-15 October 2010



WATER QUALITY IN THE RUSSIAN PART OF THE IRTYSH RIVER

www.ecomsk.ru

Prof. Sergey KOSTAREV
NP Ecological Committee, Omsk, Russia



Irtysh Basin

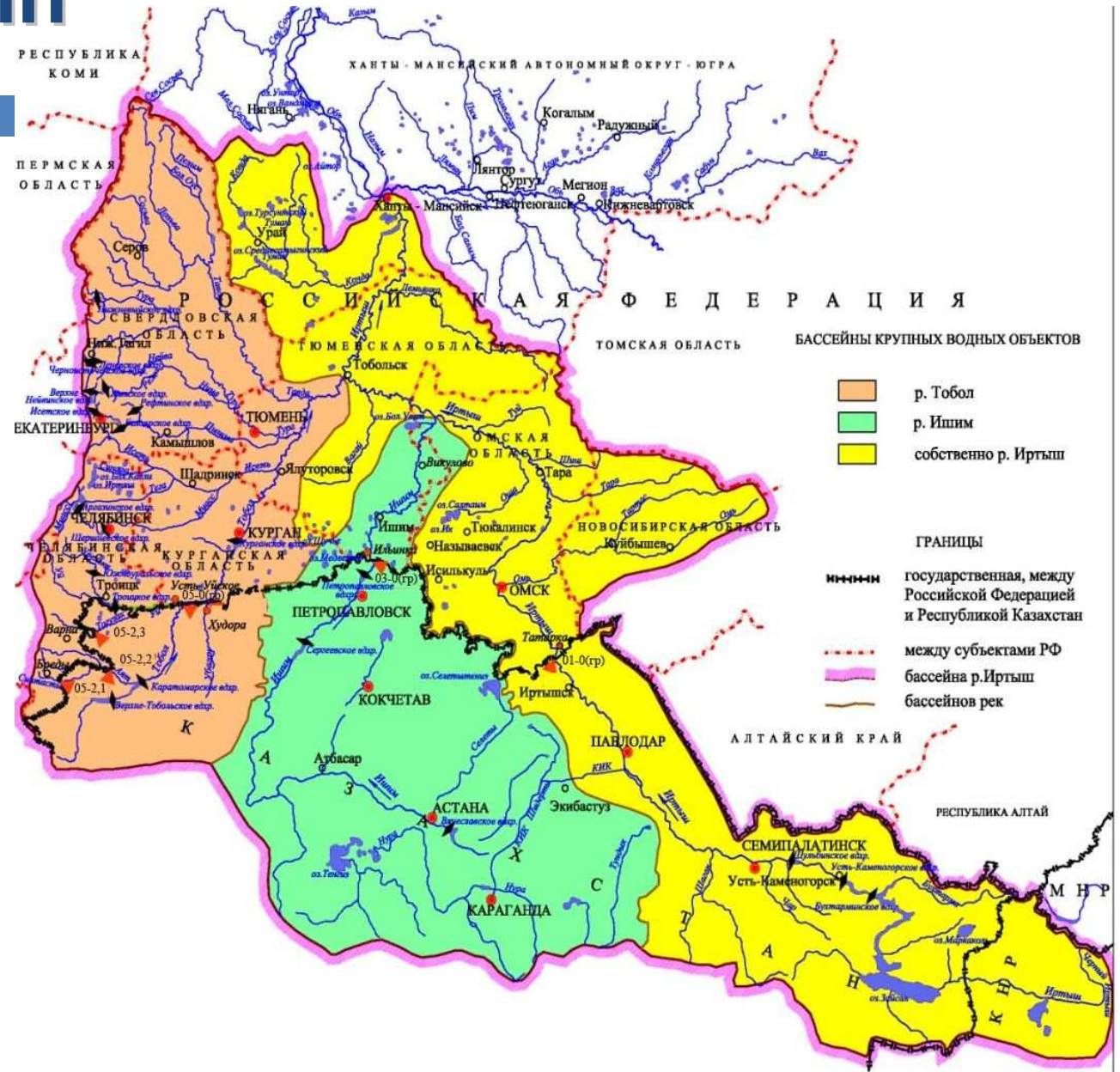
2

□ Irtysh Basin

- ▣ Tobol
- ▣ Ishim
- ▣ Irtysh

□ Irtysh River

- ▣ Russia
 - 2041 km
- ▣ Kazakhstan
 - 1589 km
- ▣ Chine
 - 618 km
- ▣ Mongolia



Irtysh Basin in Russia

3

Regions

- Chelyabinsk
- Kurgan
- Yekaterinburg
- Tyumen
- Hanty-Mansy
- Omsk
- Novosibirsk

Irtysh River

- Omsk
- Tyumen
- Hanty-Mansy



Irtysh Basin in Russia

4

□ Social-economic value

Index	Years			Forecast		
	2002	2005	2007	2010	2015	2020
Population million of persons	11.18	11.04	10.93	10.92	10.92	10.61
Density of occupation person/sq.km	15.9	15.2	15.1	15.1	15.1	14.6
Industrial production billion rubles	n/d	1492.9	2244.7	2688.3	3370.2	4286.5
Agricultural production billion rubles	94.1	131.2	179.1	211.4	240.4	279.4
Capital investment billion rubles	116.5	266.9	508.0	724.8	865.2	1055.5

Irtysh Basin in Russia

5

□ Quality of water

the specific combinatorial index of water pollution

River	Type	Index (УКМЗВ)	Class
Irtysh	4A	4,1	Dirty
Ishim	4Б	4,9	Dirty
Tobol	4Б	5,6	Dirty

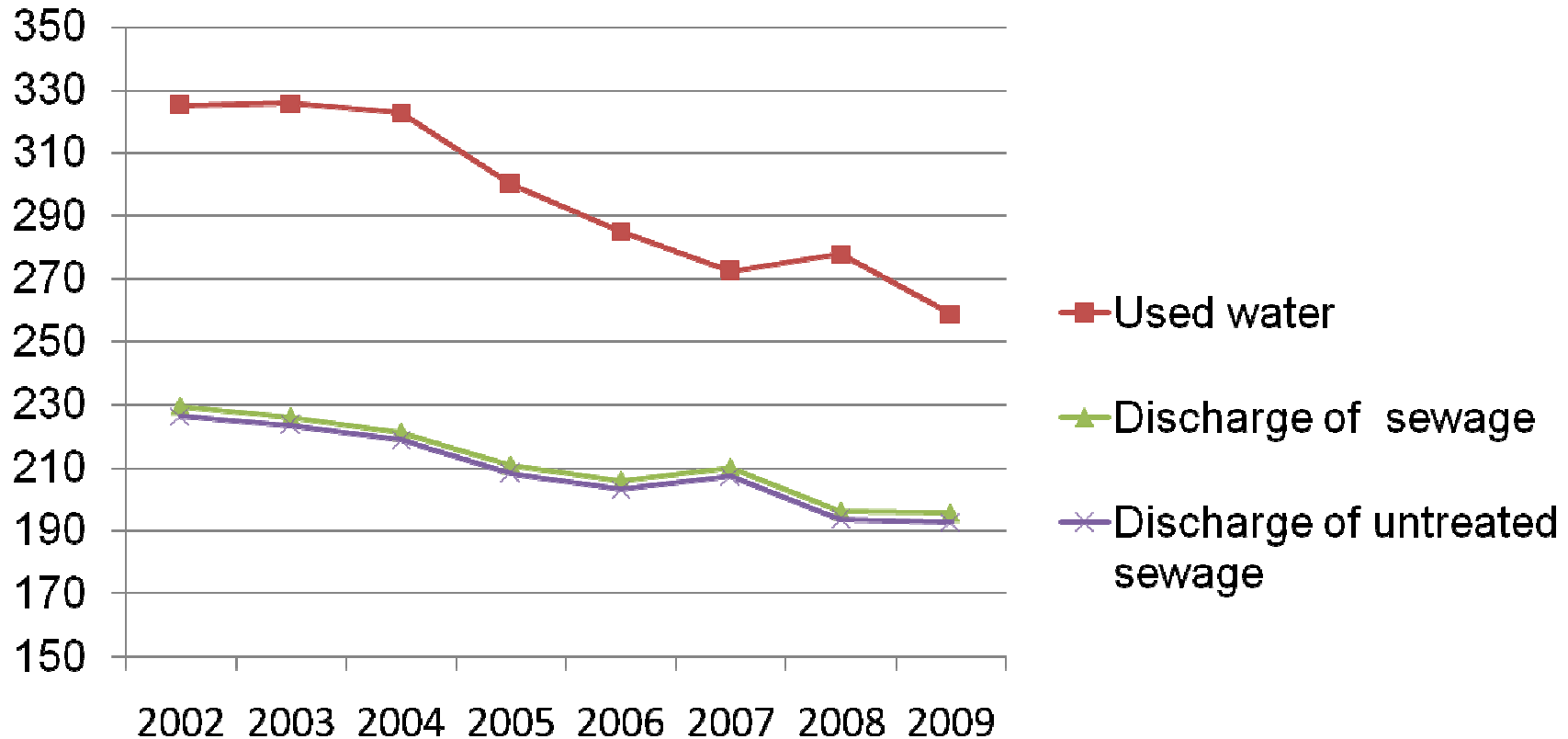
□ Discharge of sewage (million cubic meter per year)

2007	2010 (quota)	2015 (quota)	2020 (quota)
2167.46	2681	2779	3003

Irtysh Basin in Russia

6

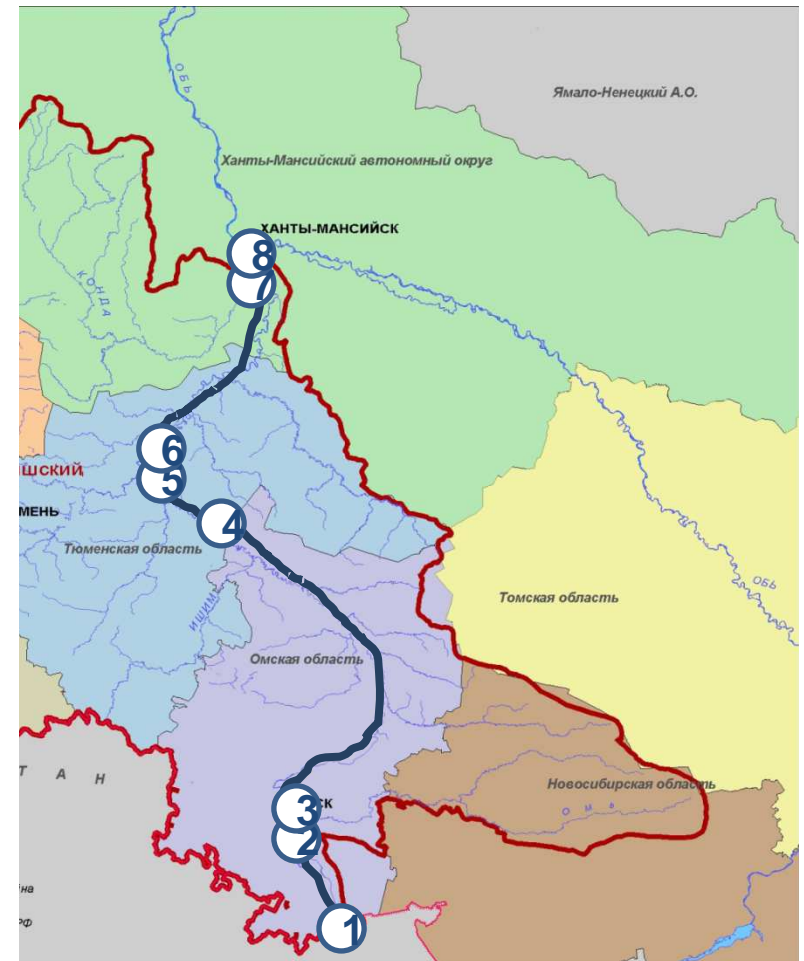
□ Discharge of sewage in Omsk Region (million cubic meters per year)



Water quality in the Irtysh River

7

- **Index**
 - ▣ mg/l
 - ▣ PDK (maximum allowable concentration)
- **Control points**
 - ▣ Hanty-Mancy, downstream (8)
 - ▣ Hanty-Mancy, upstream (7)
 - ▣ Tobolsk, downstream (6)
 - ▣ Tobolsk, upstream (5)
 - ▣ Omsk-Tyumen regions border (4)
 - ▣ Omsk, downstream (3)
 - ▣ Omsk, upstream (2)
 - ▣ Kazak-Russia border (1)

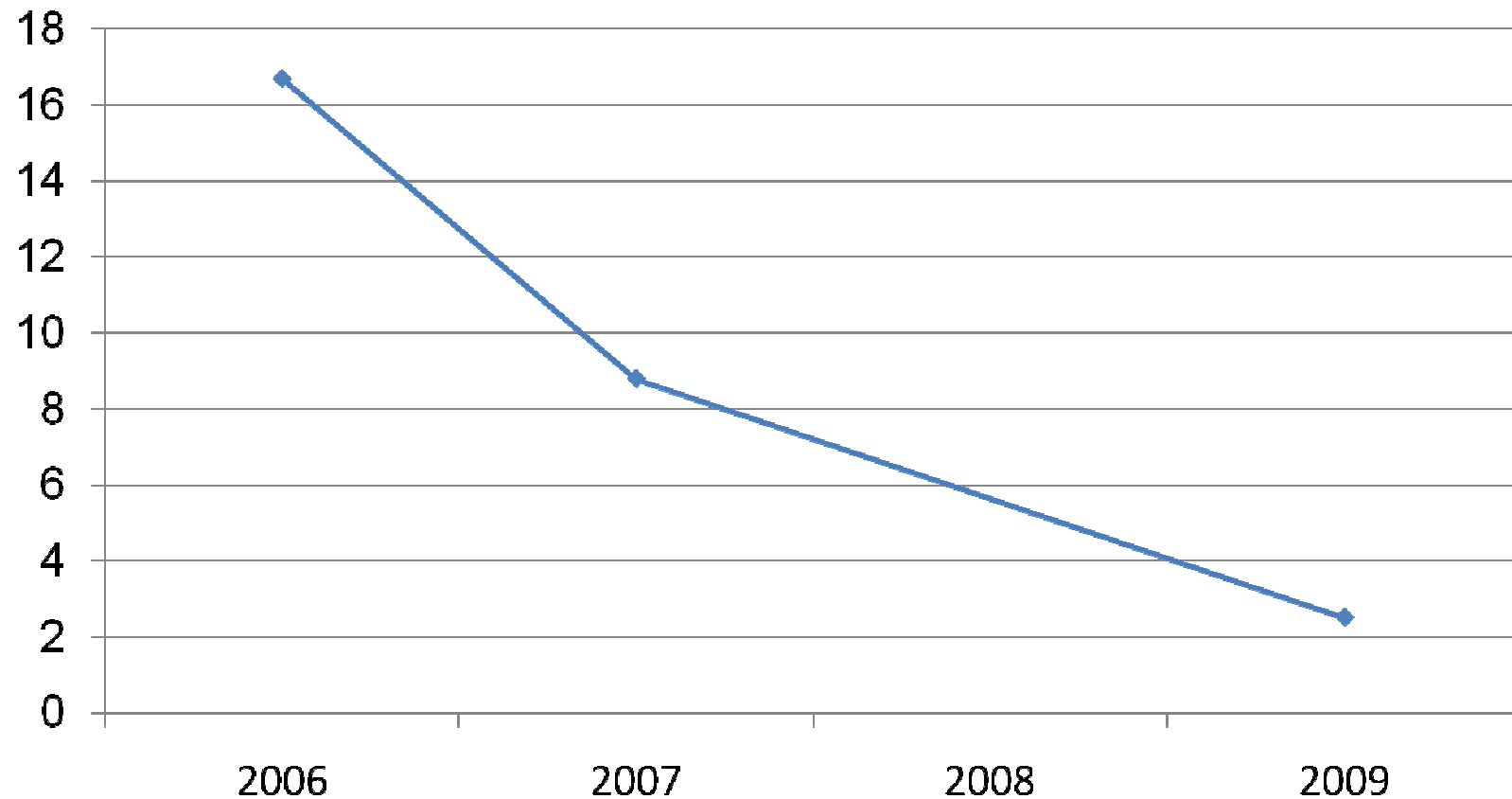


Water quality in the KZ-RU border

8

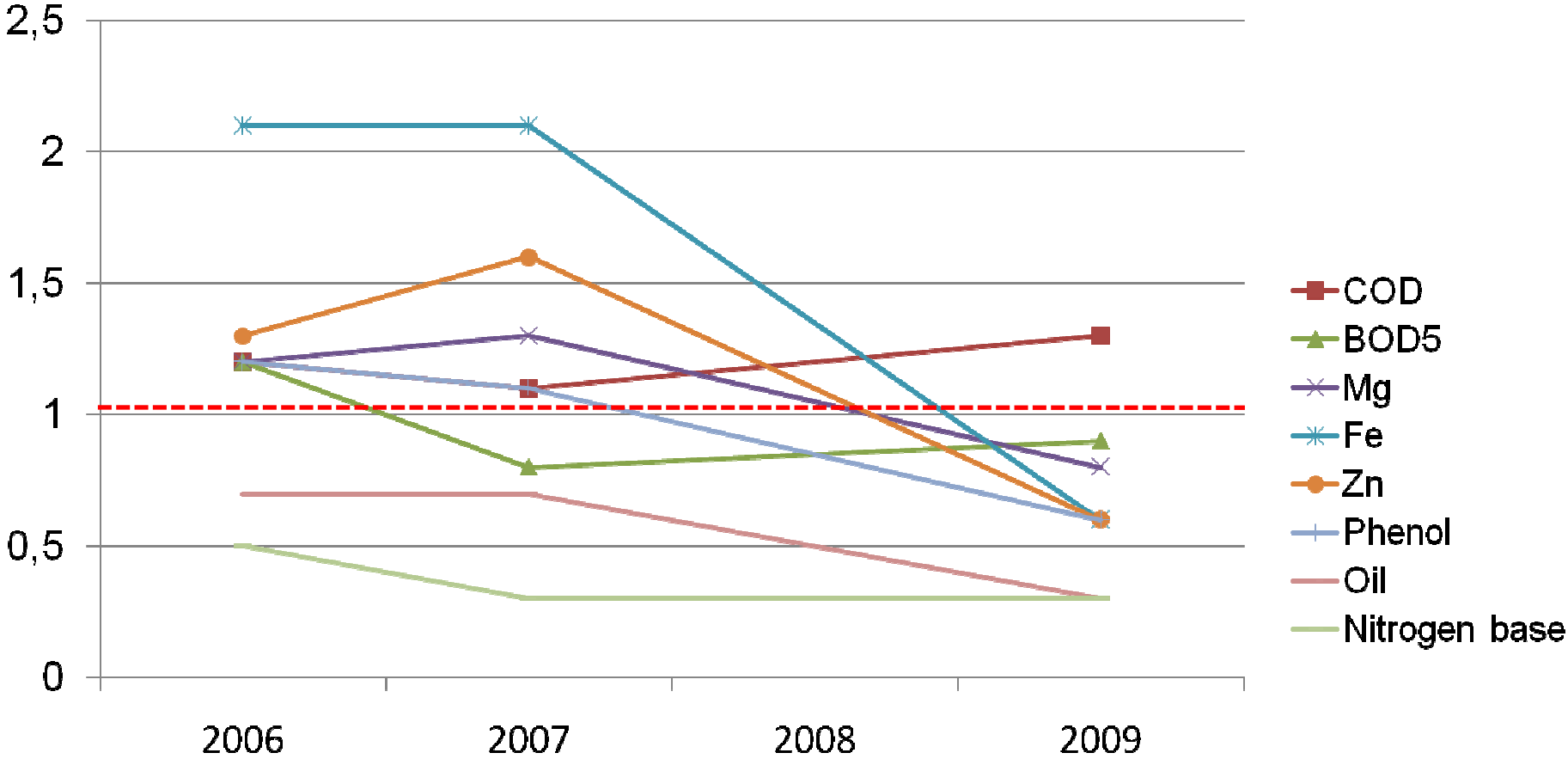
□ PDK

Cu



Water quality in the KZ-RU border

□ PDK

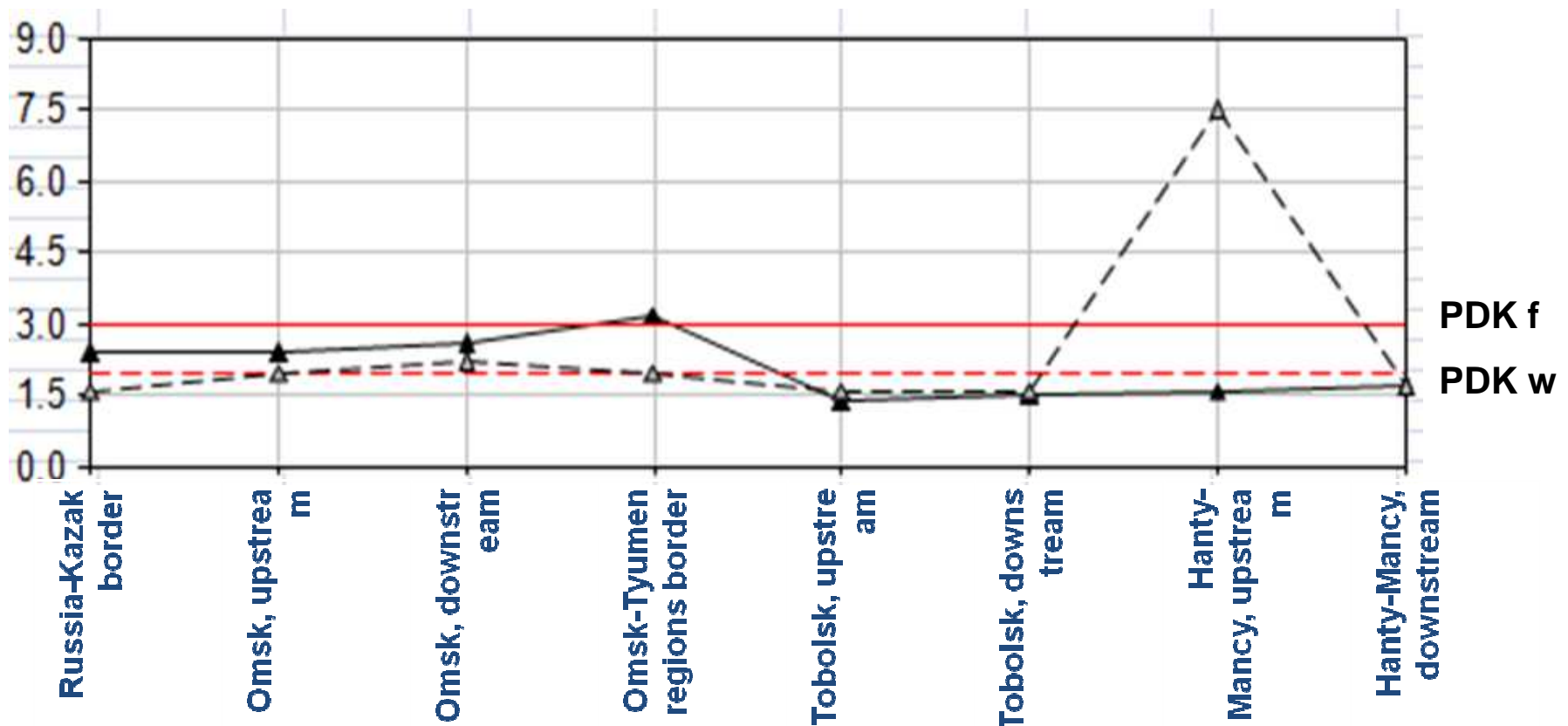


Water quality in the Irtysh River

10

□ БПК₅ - biochemical oxygen demand (BOD)

- — average annual flow
- - - - - - average annual flow (2007)

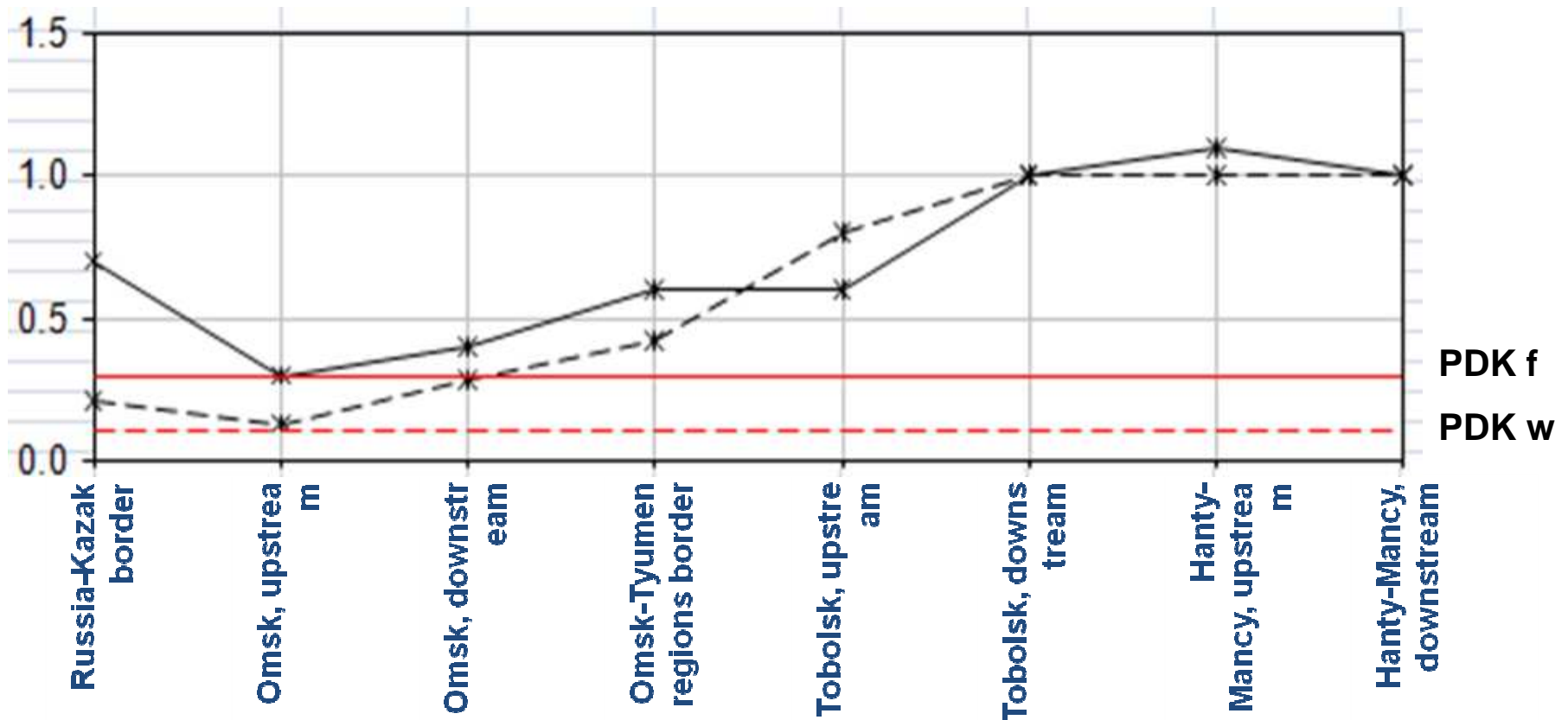


Water quality in the Irtysh River

11

□ Fe

- — average annual flow
- - - - average annual flow (2007)

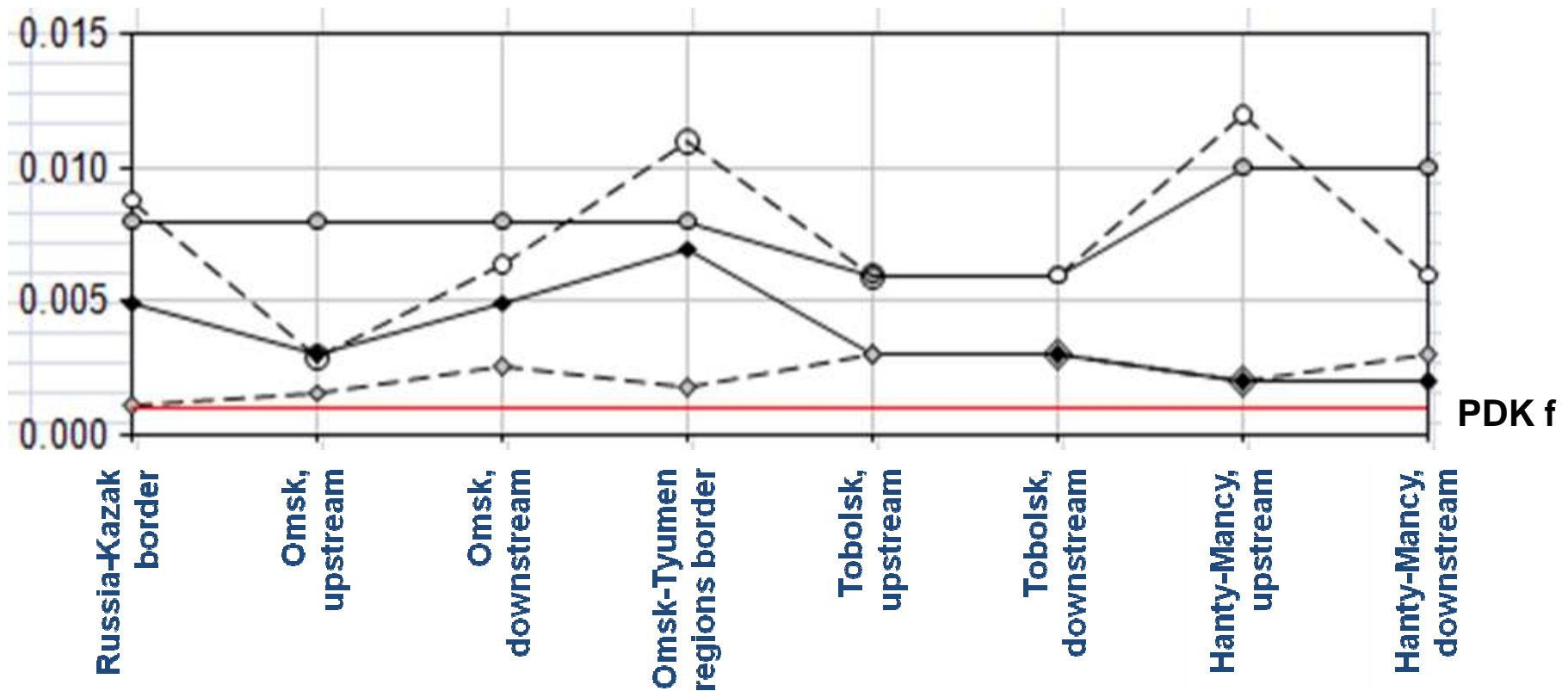


Water quality in the Irtysh River

12

□ Cu & Phenol

- — average annuals flow
- - - - - average annual flow (2007)

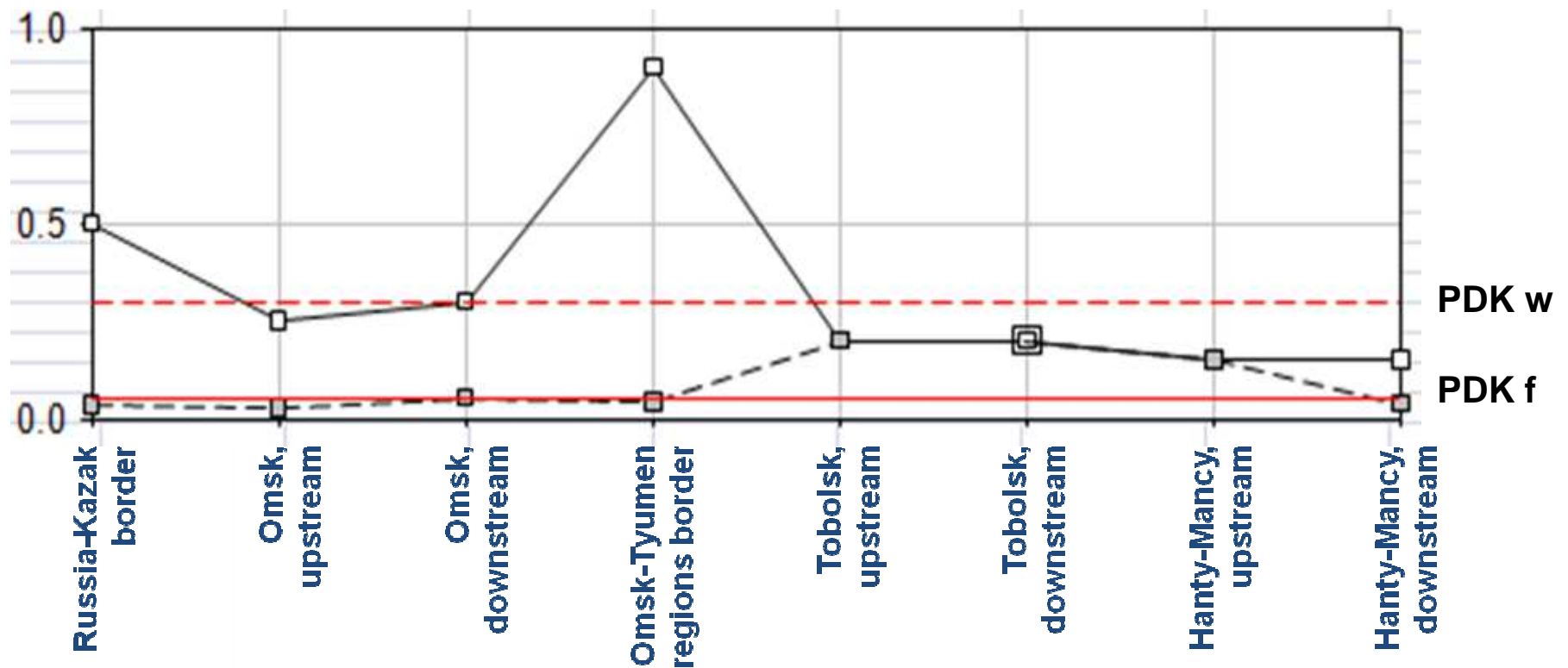


Water quality in the Irtysh River

13

Oil

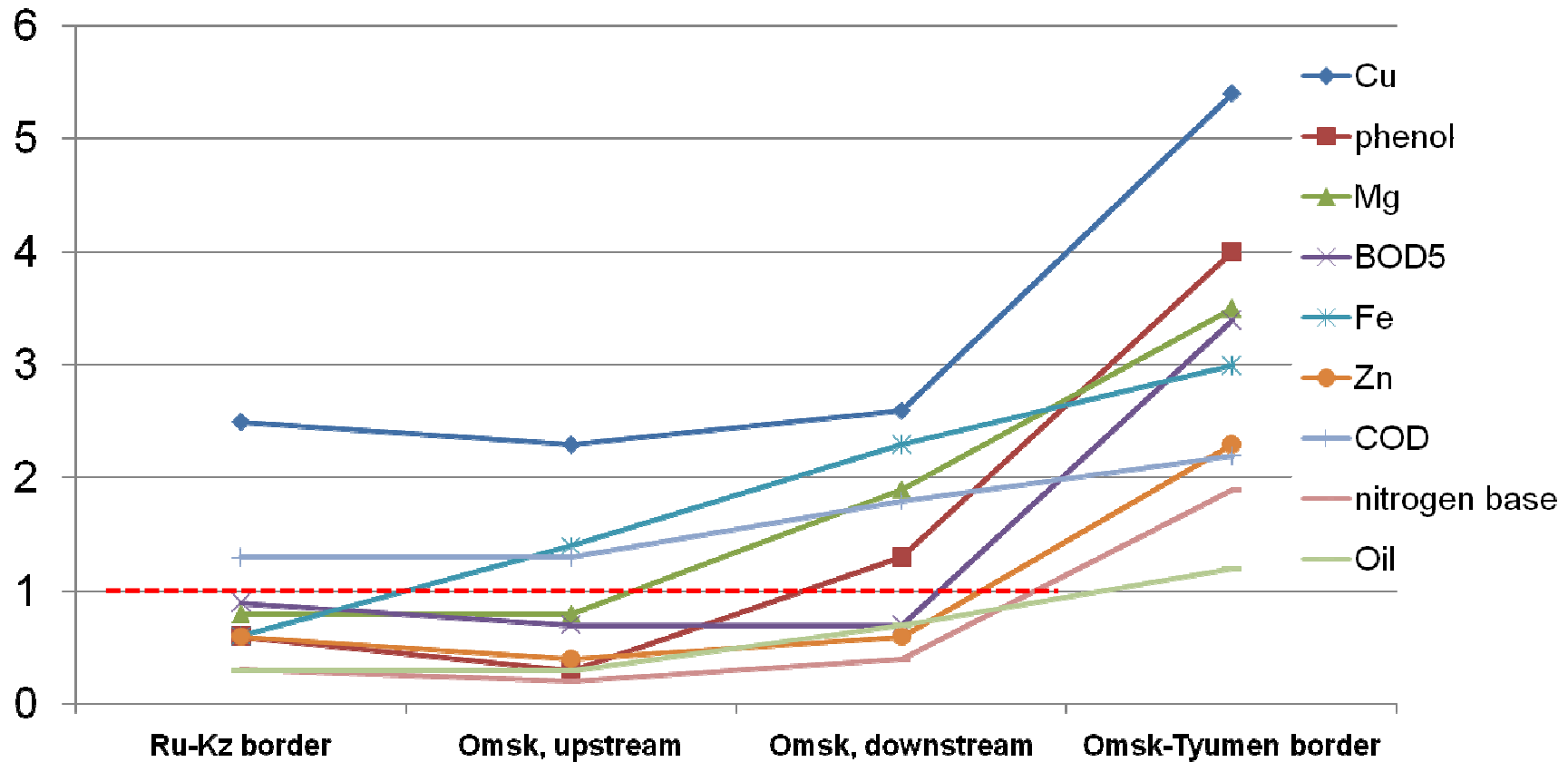
- average annuals flow
- - - average annual flow (2007)



Water quality in the Irtysh River (2009)

14

□ PDK



Measures for water quality in Irtysh

15

□ Sewage treatment factory in the cities

- million cubic meters per year for 2007 – 2020

Maximum scenario		Optimum scenario	
Million cubic m per year	Thous. cubic m per day	Million cubic m per year	Thous. cubic m per day
430.1	1178.4	355.5	974.3

□ Rural sewage treatment factory

- million cubic meters per year for 2007 – 2020

Maximum scenario		Optimum scenario	
Million cubic m per year	Thous. cubic m per day	Million cubic m per year	Thous. cubic m per day
167.5	458.9	136.6	374

836

Thank you for your attention !

www.ecomsk.ru

