The Baltic Sea Project

Protocol of river investigation

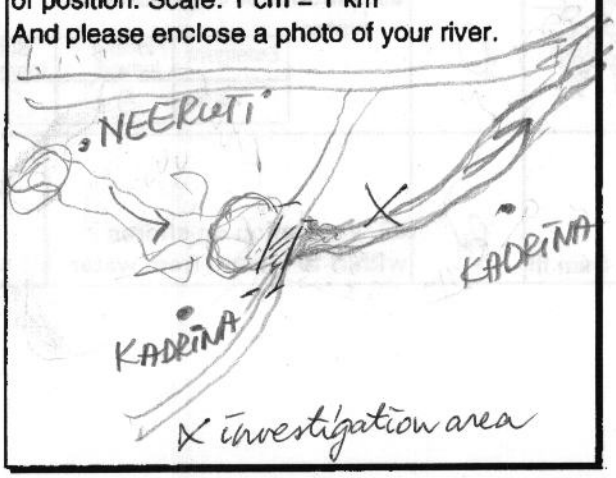
About the investigators

10. Name of River	Loobu river
11. Date of investigation	05.11.2010 ; May - Oct. 2011
12. Name of class/group	Form 10 (25 students)
13. Name of school	Kadrina Secondary School
14. Address of School	Rakvere tee 4 45201 Kadrina Lääne-Virumaa Estonia
15. E-mail /fax	siret.pung@gmail.com
16. Name of teacher	Siret Pung

General description

21. General type of the river	2
22. Landscape in the river area	3
23. Distance to the outlet, km	52 km
24. Total length of the river, km	62 km

Please draw a map of the river showing the investigation area and a major city for reference of position. Scale: 1 cm = 1 km
And please enclose a photo of your river.



General features

31. Profile of the river	4
32. Bottom material	2, 3, 4, 5
33. Surface of stones	3
34. Width of river, m	~8 m
35. Maximum depth, m	1,7-2 m
36. Water speed, cm/s	28 cm/s
37. Water flow, dm^3/s	2 m^3/s
38. Water flow at time of investigation	1

Send the protocol to programcoordinator **Jan-Erik Walldén**, Polhemskolan i Lund, Box 4047, S-22721 Lund, Sweden.

Plants

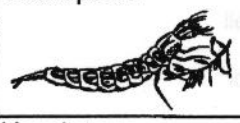
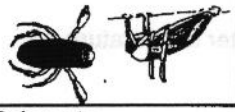
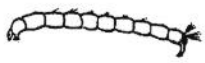
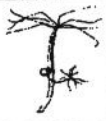
Emergent I	++/+/0	Floating-leaved II	++/+/0	Submerged-floating plants IV	++/+/0
Alismataceae 	+	Potamogetonaceae 	+	Hydrocharitaceae Elodea 	++
Butomaceae 	0	Nymphaeaceae 	++	Callitrichaceae 	0
Carex sp 	+	Polygonaceae 	+	Potamogetonacea 	+
Equisetaceae 	++	61. Sum II	3	Haloragidacea 	0
Phragmithes and other Poaceae 	+	Free-floating plants III	0	Ranunculus sp 	+
Apiaceae 	+	Hydrocharitaceae 	0	Fontinalis sp 	0
Mentha aquatica 	0	Ceratophyllaceae 	+	63. Sum IV	3
Sparganiaceae 	++	Lemnaceae 	+	64. plantdiversity I+II+III+IV=	15
Typhaceae 	+	Lentibulariaceae 	0	65. Amount of vegatation in water	
Juncus sp 	0	62. Sum III	2	66. Vegetation on shores within 10 meters from water	2
60. Sum I	7				

Emergent	Floating leaved	Sub-merged
7	3	3

Animals

Clean Water I	50	49 ++/+/0
Plecoptera 	0	0
Ephemeroptera 	X	+
Trichoptera 	X	++
Ancylus 	0	0
Gammarus 	X	++
Aphelocheirus 	0	0
51. Sum I	3	

Polluted water II	50	49 ++/+/0
Asellus 	X	++
Sialis 	X	+
Sphaerium 	0	0
Lymnaea 	X	++
Chironomus, red 	0	0
Oligochaeta 	0	0
Eristalis 	0	0
52. Sum II	3	

Other animals III	50	49 ++/+/0
Coleoptera 	X	+
Hemiptera 	X	++
Odonata 	X	+
Diptera 	0	0
Culicidae 	0	0
Chironomidae 	0	0
Bivalvia 	0	0
Hirudinea 	X	++
Turbellaria 	X	+
Gastropoda 	X	+
Arachnida 	0	0
Hydrozoa 	0	0
53. Sum III	6	

54. Sensitivity I-II=	0
55.Animal diversity I+II+III= except shadowed boxes	12
56. Pollution class	2

05. 11. 2010

Information on Water

70. Smell	1
71. Color	1
72. Turbidity	1
73. Water temperature	13°C
74. pH	≤ 7,5
75. Phosphate PO_4^{3-} (mg/l)	0,25
76. Total Organic Phosphorus (mg/l)	–
77. Nitrate, NO_3^- (mg/l)	10,0
78. Ammonium, NH_4^+	0,05
79. Total nitrogen, N, mg/l	–
80. Oxygen, mg O_2/l	8,0
81. BOD, biochemical oxygen demand	–
82. Alkalinity, mmol/l	–

Other observations: mammals, birds, fishes, flowers etc.

Fishes: Esox lucius, Perca fluviatilis, Salmo trutta trutta, Rutilus rutilus, Cyprinus carpio, Tinca tinca.
Birds: Anas platyrhynchos, Aythya fuligula, Bucephala clangula, Cygnus olor, Ardea cinerea, Cygnus cygnus, Branta leucopsis, Motacilla alba, Delichon urbica
Mammals: Castor fiber
Frogs: Rana temporaria

Evaluation

90. Estimated water quality of the river	T
91. Do you consider the river polluted by nutrients from human activities?	+
92. Do you consider the river acidified by human activities?	–

93. Please comment the figures on this page by words below!

94. Write a composition on a separate sheet. Please give comments on your experiences from the study.
How do you think the river may be improved?
A separate sheet!; a photo (2).

We look forward to get your protocol

BSP programm: RIVERS

Kadrina Secondary School
Oct. 2011

LOOBU RIVER

EVALUATION:
Our spot of observation is situated in borders of Kadrina hamlet. On Loobu river there is an impounded lake with fishstairs. Near the river there are fields, some farms and private houses. For local people the spot is a place of fishing and walking, especially with dogs.

The water of the river is clean, with enough oxygen. The impounded lake is full of spings, the water is quite cold. In summer the lake is full of vegetation, especially algae, which makes the conditions in the lake worse. Probably some fertilises drain to the river from the fields (nitrates, ammonia).

Lower course of river Loobu is a spawn place for salmons, so protection and maintenance of the river is important. In a few years Kadrina municipality has planned to clean up Kadrina impounded lake on Loobu river to make the area a pleasant place for local people to spend their free time.

We examined the Loobu river in 2010-2011, observed the vegetation and fauna in the bottom of the river. Chemical examination was carried out in spring, summer and autumn 2011 and in November 2010. We also observed birds and fish. It was difficult for us to understand Trent method.

We will continue to observe Loobu river more thoroughly in the future, including economical and cultural values connected to the river. We are compiling a more thorough overview in the future.