



Interreg
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**Ecological flow estimation in Latvian – Lithuanian Transboundary river
basins (ECOFLOW), LLI-249**

**LIST OF SPECIFIC SPECIES FOR RIVERS OF
LITHUANIAN PART OF LIELUPE RIVER BASIN
DISTRICT**



List of type specific fish species that should be present in the rivers of Lithuanian part of the Lielupė river basin at reference conditions

Rivers of Lithuania are divided into five major river types based on similarities of assemblages of aquatic organisms (TAR, 2016). The main abiotic variables, driving aquatic communities in the rivers are catchment size and gradient slope (Table 1).

Table 1. Physiographic variables representing the river types (CS – catchment size, km²; SLO – gradient slope, m/km)

Variables	River types				
	1	2	3	4	5
CS	<100	100-1000		>1000	
SLO	-	<0,7	≥0,7	<0,3	≥0,3

At reference status, stenothermal rheophilic fish species (usually, brown trout, sculpin, minnow, etc.) predominate in the small streams (Type 1). Shallow and fast-flowing sections of larger rivers (Types 3 and 5) are also inhabited by typical rheophilic fish species, while the presence of eurytopic fish species (bleak, roach, pike, etc.) are characteristic of deep and/or slow running sections of larger rivers (Types 2 and 4).

At nowadays the reference status river sites are absent in the Lielupė river basin. Therefore, the list of fish species that should be theoretically present at reference status was developed based on data, collected in the reference sites of the neighboring Nemunas river basin. There are no differences in climatic or hydrological characteristics which could lead to very specific natural characteristics of the rivers in the Nemunas and Lielupė river basins. Consequently, the structure of fish communities between the rivers of the same type and the same ecological status do not differ, too (Lielupės UBRVP, 2015). However, few fish species which are quite common in the Nemunas river basin are absent from the Lielupė basin: the barbel (*Barbus barbus*), grayling, brown trout and salmon (*Salmo salar*). Nemunas river basin is the northern boundary of the barbel distribution area. Salmonids and grayling are absent from the Lithuanian part of Lielupė river basin due to the

low availability of areas suitable for spawning of these fish species. Therefore, they were excluded prior to developing the list.

The list of fish species that should be present in the Lielupé RBD rivers of different types at reference conditions is presented in the Table 2. Atypical and non-native fish species, which can occasionally occur (e.g. lake dwellers, common carp, etc.) are excluded.

Table 2. List of type specific fish species at reference conditions per catch per unit of effort with electric fishing gear (F – frequency of occurrence; N – actual abundance ind. ha⁻¹).

Species	Type 1		Type 2		Type 3		Type 4		Type 5	
	F (%)	N (mean ±SD)								
Bream <i>Abramis brama</i>							8	3.7±9.1	8	3.8±8.6
Riffle minnow <i>Alburnoides bipunctatus</i>	15	13.0±41.1	78	348.9±490.5	50	228.1±424.1	100	799.0±569.5	100	357.7±193.1
Bleak <i>Alburnus alburnus</i>	5	3.0±13.4	28	24.4±66.0	19	12.2±48.0	77	547.6±515.0	33	138.7±267.2
Asp <i>Aspius aspius</i>							4	1.0±2.0	8	1.0±2.0
Stone loach <i>Barbatulus barbatulus</i>	80	98.0±125.6	56	41.1±52.0	88	403.4±748.9	46	73.9±103.8	100	157.6±88.8
Spined loach <i>Cobitis taenia</i>	5	0.5±2.2	33	12.2±25.1	16	5.9±21.8	38	47.4±77.5	8	0.7±1.7
Sculpin <i>Cottus gobio</i>	85	157.0±170.5	61	38.9±56.2	97	224.4±209.9	38	16.3±19.3	92	111.7±143.6
Pike <i>Esox lucius</i>	45	12.5±24.0	50	11.1±16.8	16	2.2±5.5	69	24.7±40.6	58	32.5±29.8
Three-spined stickleback <i>Gasterosteus aculeatus</i>	15	3.5±9.9	11	1.7±5.1	25	6.9±14.2	23	24.7±44.8	25	51.4±74.4
Gudgeon <i>Gobio gobio</i>	15	107.5±356.7	61	55.6±67.1	63	103.1±186.1	46	135.8±175.8	100	235.2±136.8
Lamprey <i>Lampetra sp</i>	15	5.5±16.7			28	6.9±15.1	4	1.0±2.6	33	7.0±8.3
Ide <i>Leuciscus idus</i>			6	0.6±2.4			8	3.7±9.1	17	22.1±42.7
Dace <i>Leuciscus leuciscus</i>	30	21.0±49.6	39	19.4±38.9	75	70.3±99.1	46	31.8±36.6	92	111.2±173.0
Burbot <i>Lota lota</i>	15	1.5±3.7	28	4.4±9.8	22	3.1±6.4	23	16.1±31.9	42	16.5±16.8
Perch <i>Perca fluviatilis</i>	15	6.5±16.9	61	35.0±37.9	34	8.8±19.3	69	61.9±107.5	33	13.3±18.8
Minnow <i>Phoxinus phoxinus</i>	85	630.5±800.1	67	232.8±313.2	97	625.6±741.3	38	305.0±453.9	92	214.8±134.0
Bitterling <i>Rhodeus sericeus</i>	10	3.5±10.9	17	1.7±3.8	9	14.4±57.0	69	226.4±224.9	17	52.1±116.6
Roach <i>Rutilus rutilus</i>	15	29.5±51.5	78	230.6±216.5	22	17.5±56.4	92	643.4±570.8	100	282.5±277.7
Chub <i>Squalius cephalus</i>	5	6.5±29.1	44	50.0±79.7	28	53.8±121.1	69	93.4±112.9	67	144.2±198.8
Vimba <i>Vimba vimba</i>					13	1.3±3.4			8	2.6±4.2

References

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