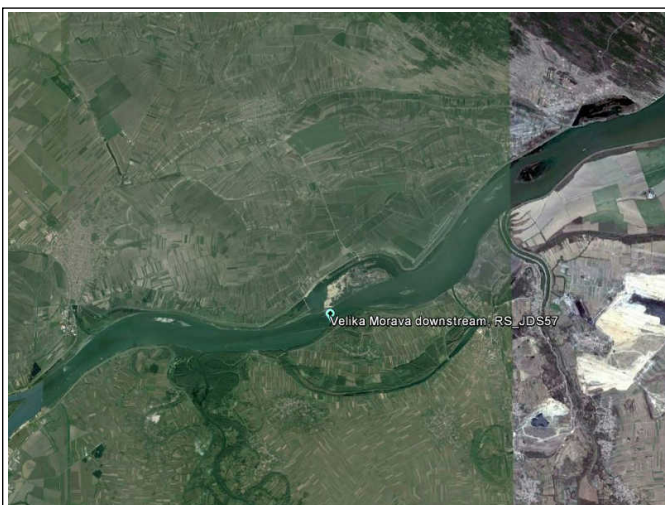


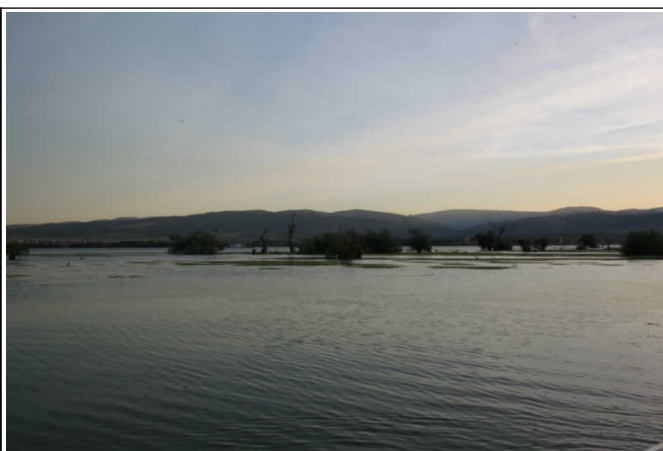
Danube

Velika Morava downstream, RS_JDS57 (RS_JDS57), 07.September 2013

FDA_ID 227



Pic. 1: Map of monitoring site / ÖK 1:50.000



Pic. 2: Monitoring site Velika Morava downstream, RS_JDS57

Description of monitoring site

- no data -

Assessment**Estimated assessment of the ecological status class (FÖZ)**

Biological quality element fish	None
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Ecological status class, current survey, 07.September 2013

Biological quality element fish	FIA 2.34	Class 2	Good
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Former classifications

None				
None				
None				

Information about and sampling conditions and location

Table 1: Key data and information on sampling, monitoring site Velika Morava downstream, RS_JDS57

Watercourse name	Danube	Federal state	not available
Monitoring site	Velika Morava downstream, RS_JDS57	District	
Monitoring site number	RS_JDS57	Community	
Turnus number		Longitude (WGS 84, decimal) O	21.097569
sampling number		Latitude (WGS 84, decimal) N	44.725286
Survey-ID (FDA)	227	Route-ID	
Date	9/7/2013	River-km [monitoring site]	
Contracting authority	ICPDR	Number of planing area	
Contractor	BAW-IGF	Detail waterbody	
Project manager	Vinzenz Bammer		
Reason of survey	JDS 3		
Fishing category			
Bioregion		Waters ordinal number	
Fish bioregion	Pannonian Plain Danube (1497-1075) (6)	Huet-zonation	breem zone
Biocenotic Region	Metapotamon	Adapt. Reference	113
River km mean	1,107.0	Altitude [m.a.s]	69
		Ø catchment basin [km²]	568,000
Section length [m]	2,000	Catchment-class	more than 10.000km²
Ø channel width [m]	960	Slope [‰]	0.01
Original stream character	lowland stream -river	Discharge regime	
Actual site character			
Actual impact		Reference watergauge (name, number)	
Flow [semiquant.]		Distance from source [km]	1,739.0
Average water depth [m]		Lake above	No
Maximum water depth [m]		Distance lake upstream [km]	
Geology	calcareous	Lake below	
Influence of sediment transport	slightly affected	Distance lake downstream [km]	
Ø wetted width [m]	960	Flow condition	
pH-value		Visible depth	
SBV		Fishing conditions	
Water temperature [°C] (F117)	22	Average annual air temperature [°C]	11.7
Conductance, 25°C [µS/cm] (F118)	360		
Methods used and effort			
Strip-fishing, day		Number of runs	1
Fished length [m]	6,025	E-devices output [kW]	11
Fished area [m²]	18,075	Output voltage	600
		Number of anodes	
		Number of strips/sections	15
and additional methods	Fished area [m²]	additional methods	Effort [UE]
E-Fishing by night	9,195		

Comments on survey:

- *no data* -

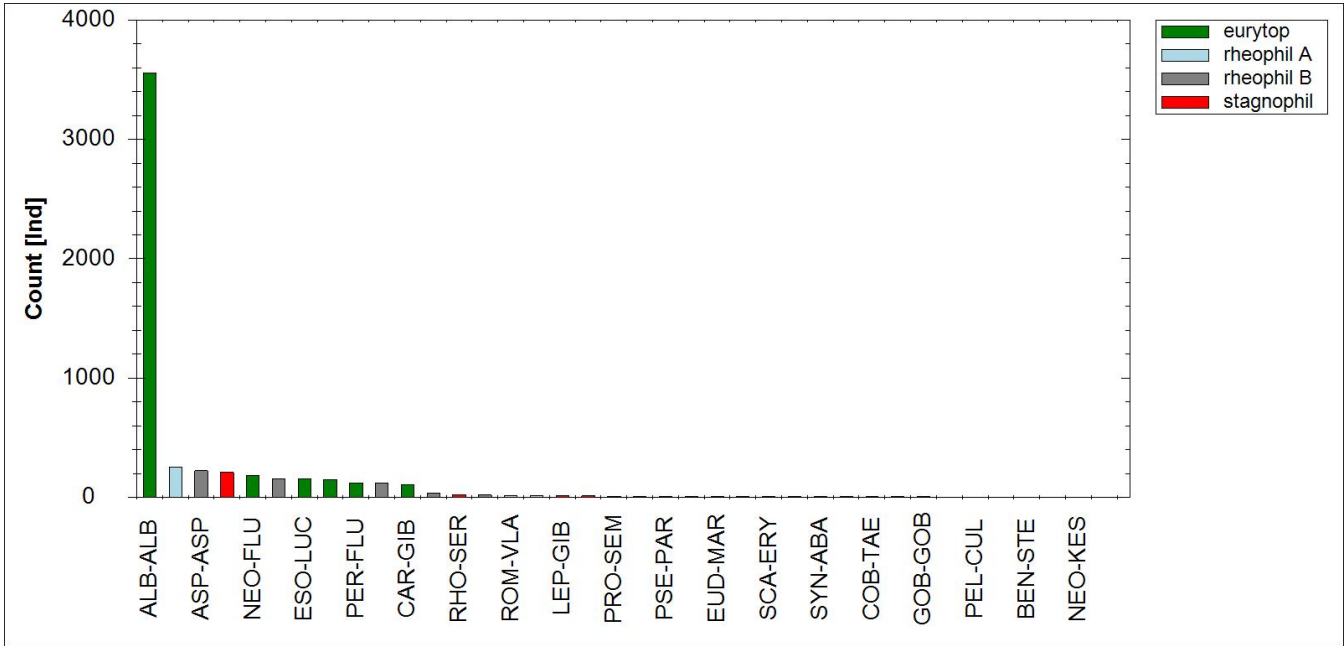
Table 2: Sampling effort at the monitoring site Velika Morava downstream, RS_JDS57, September 2013

Habitat	Str. no	DG	Length [m]	Width [m]	UE	Method
rock	16	1	500	3		E-fishing day boat
rock	17	1	400	3		E-fishing day boat
rock	18	1	700	3		E-fishing day boat
rock	19	1	600	3		E-fishing day boat
rock	20	1	500	3		E-fishing day boat
rock	21	1	300	3		E-fishing night
rock	22	1	500	3		E-fishing night
rock	23	1	900	3		E-fishing night
other natural bank	1	1	380	3		E-fishing day boat
other natural bank	2	1	380	3		E-fishing day boat
other natural bank	3	1	365	3		E-fishing day boat
other natural bank	4	1	340	3		E-fishing day boat
other natural bank	5	1	330	3		E-fishing day boat
other natural bank	6	1	265	3		E-fishing night
other natural bank	7	1	267	3		E-fishing night
other natural bank	8	1	291	3		E-fishing night
other natural bank	9	1	272	3		E-fishing night
other natural bank	10	1	270	3		E-fishing night
indefinite waterside	1	1	330	3		E-fishing day boat
indefinite waterside	2	1	380	3		E-fishing day boat
indefinite waterside	3	1	310	3		E-fishing day boat
indefinite waterside	4	1	210	3		E-fishing day boat
indefinite waterside	5	1	300	3		E-fishing day boat

Table 3: Habitat weighting used at the monitoring site Velika Morava downstream, RS_JDS57

Habitat	%
indefinite waterside	20
other natural bank	80
rock	0

Catch result, fish assemblage and threatening status



Pic. 3: Species ranking diagramm of catch resultsDanube, Velika Morava downstream, RS_JDS57

Table 4: Reference fish assemblage, allochthonous species and threat status

Family	English name	Scient. name of species	Reference fish assemblage	FHH	Red List	IUCN	Count
Petromyzontidae	Ukrainian lamprey	<i>Eudontomyzon mariae</i>	s	II	VU	DD	6
Cyprinidae	Asp	<i>Aspius aspius</i>	b	II	EN	DD	222
	Barbel	<i>Barbus barbus</i>	b	V	NT	LC	5
	Bleak	<i>Alburnus alburnus</i>	I	-	LC	LC	3,558
	Blue bream	<i>Abramis ballerus</i>	I	-	EN		1
	Bream	<i>Abramis brama</i>	b	-	LC		20
	Carp	<i>Cyprinus carpio</i>	b	-	EN	DD	5
	Chub	<i>Squalius cephalus</i>	s	-	LC	LC	
	Danubian gudgeon	<i>Romanogobio uranoscopus</i>	s	II	CR	DD	
	Gudgeon	<i>Gobio gobio</i>	b	-	LC	LC	5
	Ide	<i>Leuciscus idus</i>	b	-	EN	LC	155
	Kessler's gudgeon	<i>Romanogobio kessleri</i>	b	II	EN	DD	3
	Nase	<i>Chondrostoma nasus</i>	b	-	NT	LC	
	Prussian carp	<i>Carassius gibelio</i>	I	-	LC		103
	Roach	<i>Rutilus rutilus</i>	I	-	LC	LC	148
	Tench	<i>Tinca tinca</i>	s	-	VU	LC	
	Vimba bream	<i>Vimba vimba</i>	I	-	VU	LC	
	White bream	<i>Blicca bjoerkna</i>	I	-	LC	LC	34
Esocidae	Pike	<i>Esox lucius</i>	b	-	NT		152
Gadidae	Burbot	<i>Lota lota</i>	b	-	VU		
Percidae	Danube ruffe	<i>Gymnocephalus baloni</i>	b	II; IV	VU	DD	3
	Perch	<i>Perca fluviatilis</i>	b	-	LC	LC	121
	Pikeperch	<i>Sander lucioperca</i>	b	-	NT	LC	116
	Ruffe	<i>Gymnocephalus cernuus</i>	b	-	LC	LC	
	Schraetser	<i>Gymnocephalus schraetser</i>	b	II; V	VU	VU	8
	Volga pikeperch	<i>Sander volgensis</i>	s	-	EN	DD	
	Zingel	<i>Zingel zingel</i>	s	II; V	VU	VU	
Siluridae	Wels catfish	<i>Silurus glanis</i>	b	-	VU	LC	6
Gobiidae	Tubenose goby	<i>Proterorhinus semilunaris</i>	I	-	EN	LC	10
Cobitidae	Spined loach	<i>Cobitis taenia</i>	b	II	VU	LC	5
Balitoridae	Danube bream	<i>Abramis sapa</i>	b	-	EN		6
Acipenseridae	Danube sturgeon	<i>Acipenser gueldenstaedtii</i>	s	V	RE	EN	
	Fringebarbel sturgeon	<i>Acipenser nudiiventris</i>	s	V	RE	EN	
	Sterlet	<i>Acipenser ruthenus</i>	b	V	CR	VU	
Syngnathidae	Black-striped pipefish	<i>Syngnathus abaster</i>		-			6
Cyprinidae	Bitterling	<i>Rhodeus amarus</i>		II	VU	LC	24
	Rudd	<i>Scardinius erythrophthalmus</i>		-	LC	LC	6
	Sabre carp	<i>Pelecus cultratus</i>		II; V	NT	DD	3
	Stone moroko	<i>Pseudorasbora parva</i>		-	NE		7
	White-finned gudgeon	<i>Romanogobio vladykovi</i>		II	LC	DD	16
Gobiidae	Bighead goby	<i>Neogobius kessleri</i>		-	NE	DD	1
	Chinese sleeper	<i>Perccottus glenii</i>		-			12
	Monkey goby	<i>Neogobius fluviatilis</i>		-	NE	DD	179
	Mushroom goby	<i>Neogobius eurycephalus</i>		-			209
	Racer goby	<i>Neogobius gymnotrachelus</i>		-	NE	DD	14

Family	English name	Scient. name of species	Reference fish assemblage	FHH	Red List	IUCN	Count
	Round goby	<i>Neogobius melanostomus</i>		-	NE	DD	252
	Stellate tadpole-goby	<i>Benthophilus stellatus</i>					2
Cobitidae	Bulgarian golden loach	<i>Sabanejewia bulgarica</i>					1
	Weatherfish	<i>Misgurnus fossilis</i>		II	CR	NT	6
Centrarchidae	Pumkinseed	<i>Lepomis gibbosus</i>		-	NE		13

Observed:: reference fish assemblage 22Taxa :: 34Taxa

Taxa complete 38

Count species of reference fish assemblage 4,692

Total count 5,443

Fish ecological reference fish assemblage (Haunschmid et al., 2006)

- I Dominant species
- b Subdominant species
- s Rare species
- a! Allochthon
- N! Neozoa

FFH...Fauna-Flora-Habitat-Directive (Council Directive 92/43/EEC of 21.Mai 1992)

- II Species listed in Annex II of the FFH- Directive (nature reserves have to be set out for this species)
- IV Species listed in Annex IV of the FFH- Directive (strict protection of animals and plants)
- V Species listed in Annex V of the FFH- Directive (species whose collection and use is subject to administrative control)
- RE Regionally extinct
- CR Critically endangered
- EN Endangered
- VU Vulnerable
- NT Near threatened
- LR Lower risk
- LC Least concern
- DD Available data is not sufficient for classification (data deficient)
- NE Not evaluated, usually widespread and replicating alien species

Abundance and biomass

Table 5: abundance and biomass (e-fishings) Danube, Velika Morava downstream, RS_JDS57, 9/7/2013

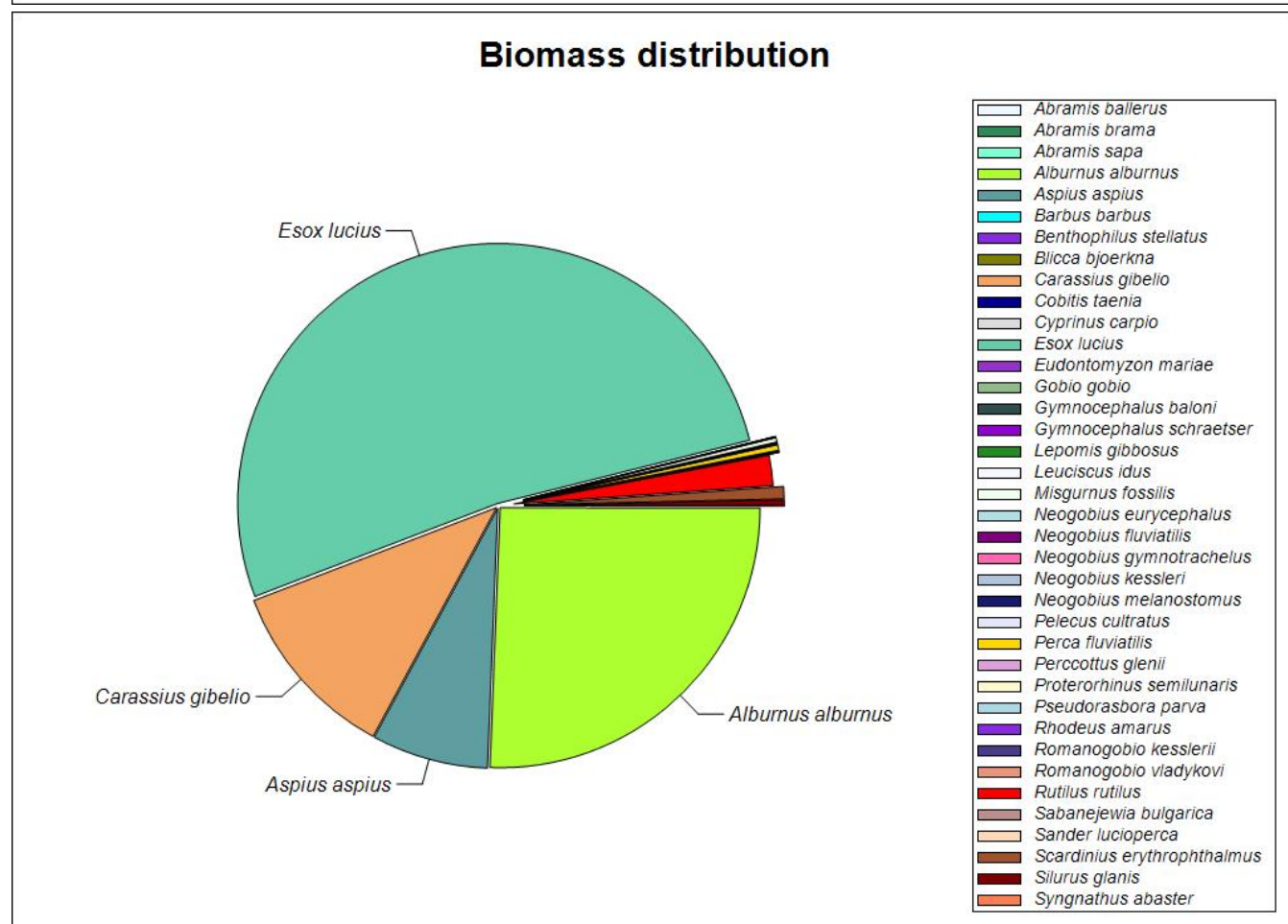
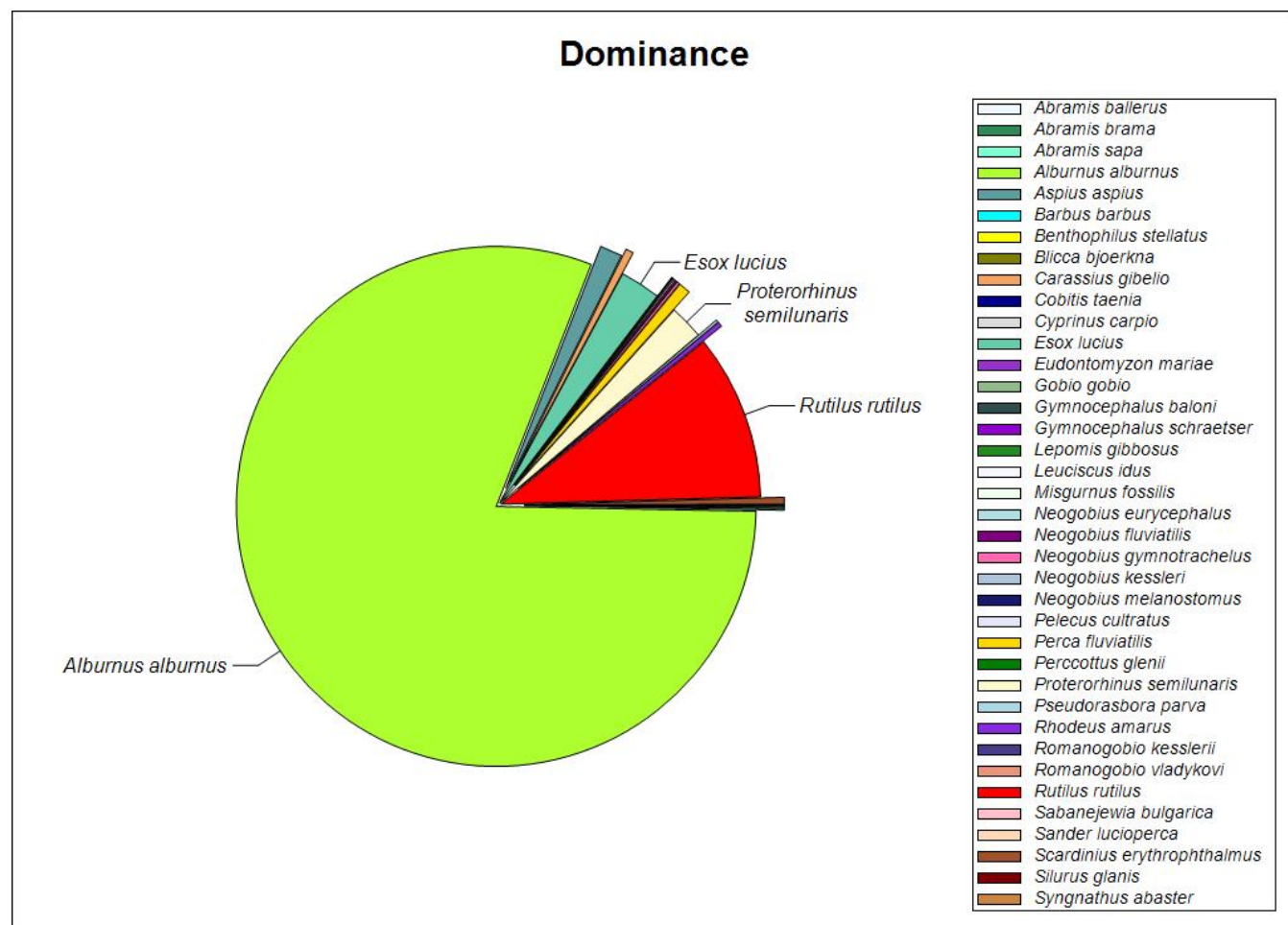
English name	Species Code	Count	Abu [Ind/ha]	95% Konfid.	Biom [kg/ha]	95% Konfid.	Weight [g] median	Mean Weight [g] total	Population structure	Reference fish assemblage
Asp	ASP-ASP	222	157.1		11.2		12.7	71.1	2	b
Barbel	BAR-BAR	5	0.0		0.0	0.0	7.1	0.0	4	b
Bighead goby	NEO-KES	1	0.0		0.0	0.0	8.5	0.0		
Bitterling	RHO-SER	24	34.5		0.0		4.4	0.7		
Black-striped pipefish	SYN-ABA	6	0.0		0.0	0.0	12.9	0.0	3	
Bleak	ALB-ALB	3,558	9,123.7		39.5		8.0	4.3	1	I
Blue bream	ABR-BAL	1	5.0		0.0		4.5	0.7	4	I
Bream	ABR-BRA	20	14.9		0.0		16.5	1.1	3	b
Bulgarian golden loach	SAB-BUL	1	0.0		0.0	0.0	9.5	0.0	4	
Carp	CYP-CAR	5	0.0		0.0	0.0	24.2	0.0	3	b
Chinese sleeper	PER-GLE	12	0.0		0.0	0.0	4.9	0.0	2	
Danube bream	ABR-SAP	6	13.6		0.0		6.8	0.3	3	b
Danube ruffe	GYM-BAL	3	5.0		0.0		6.5	1.6	3	b
Gudgeon	GOB-GOB	5	0.0		0.0	0.0	9.8	0.0	3	b
Ide	LEU-IDU	155	9.9		0.1		10.2	7.9	3	b

English name	Species Code	Count	Abu [Ind/ha]	95% Konfid.	Biom [kg/ha]	95% Konfid.	Weight [g] median allover	Mean Weight [g] total	Population structure	Reference fish assemblage
Kessler's gudgeon	ROM-KES	3	0.0		0.0	0.0	7.8	0.0	3	b
Monkey goby	NEO-FLU	179	14.9		0.1		7.4	5.6	1	
Mushroom goby	NEO-EUR	209	0.0		0.0	0.0	8.9	0.0	1	
Perch	PER-FLU	121	84.1		0.5		9.2	6.2	1	b
Pike	ESO-LUC	152	284.8		80.0		29.0	281.0	3	b
Pikeperch	SAN-LUC	116	0.0		0.0	0.0	17.3	0.0	3	b
Prussian carp	CAR-GIB	103	55.9		17.4		20.2	311.6	1	l
Pumkinseed	LEP-GIB	13	1.7		0.0		10.5	6.3	3	
Racer goby	NEO-GYM	14	20.3		0.1		7.0	6.2	2	
Roach	RUT-RUT	148	1,163.7		2.9		8.8	2.5	1	l
Round goby	NEO-MEL	252	0.0		0.0	0.0	8.3	0.0	1	
Rudd	SCA-ERY	6	48.9		1.2		12.1	23.8	3	
Sabre carp	PEL-CUL	3	0.0		0.0	0.0	19.7	0.0	4	
Schraetser	GYM-SCH	8	0.0		0.0	0.0	12.7	0.0	3	b
Spined loach	COB-TAE	5	0.0		0.0	0.0	10.3	0.0	3	b
Stellate tadpole-goby	BEN-STE	2	0.0		0.0	0.0	4.0	0.0	4	
Stone moroko	PSE-PAR	7	18.6		0.0		5.6	2.0		
Tubenose goby	PRO-SEM	10	240.8		0.1		4.0	0.5	2	l
Ukrainian lamprey	EUD-MAR	6	0.0		0.0	0.0	14.7	0.0	3	s
Weatherfish	MIS-FOS	6	12.2		0.4		19.1	34.0	3	
Wels catfish	SIL-GLA	6	1.7		0.6		25.4	319.5	3	b
White bream	ABR-BJO	34	0.0		0.0	0.0	8.3	0.0	3	l
White-finned gudgeon	ROM-VLA	16	0.0		0.0	0.0	8.1	0.0	2	

22 species of 34

Total 5,443 11,311.3

154.1



Pic. 4: Dominance und Biomass distribution

Shannon-Index: 1.586

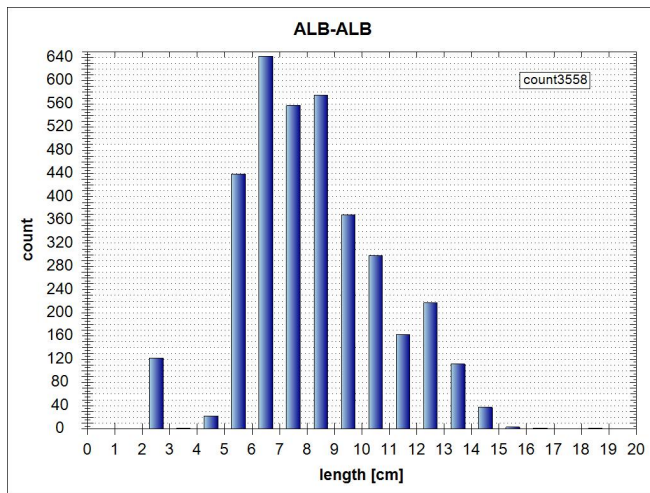
Equitability: 0.436

Biometrics and catch rate

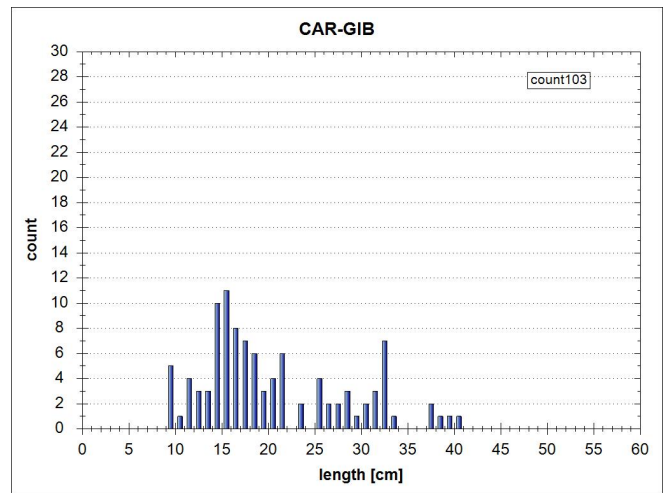
Table 6: biometrics of each species and catch specific parameters

Fish species	Lt [cm]		n	Statist.	Catch-	Catch-effectivity		
	Min	Max		Method	Probability [%]	Min	MW	Max
Asp	5.0	12.7	40.5	222		0.05	0.45	0.50
Barbel	4.5	7.1	12.0	5		0.50	0.50	0.50
Bighead goby	8.5	8.5	8.5	1		0.30	0.30	0.30
Bitterling	2.5	4.4	6.0	24		0.10	0.38	0.50
Black-striped pipefish	12.0	12.9	14.0	6		0.50	0.50	0.50
Bleak	2.0	8.0	18.0	3,558		0.01	0.47	0.50
Blue bream	4.5	4.5	4.5	1		0.30	0.30	0.30
Bream	4.5	16.5	32.5	20		0.30	0.46	0.50
Bulgarian golden loach	9.5	9.5	9.5	1		0.50	0.50	0.50
Carp	11.5	24.2	55.0	5		0.50	0.60	1.00
Chinese sleeper	4.0	4.9	6.0	12		0.50	0.50	0.50
Danube bream	3.5	6.8	10.5	6		0.25	0.34	0.50
Danube ruffe	5.0	6.5	7.5	3		0.25	0.28	0.30
Gudgeon	9.5	9.8	10.0	5		0.50	0.50	0.50
Ide	5.5	10.2	28.5	155		0.30	0.50	0.50
Kessler's gudgeon	7.5	7.8	8.5	3		0.50	0.50	0.50
Monkey goby	4.0	7.4	12.5	179		0.30	0.50	0.50
Mushroom goby	5.5	8.9	14.5	209		0.50	0.50	0.50
Perch	5.0	9.2	22.0	121		0.20	0.37	0.50
Pike	15.0	29.0	64.0	152		0.01	0.45	0.50
Pikeperch	7.5	17.3	55.0	116		0.25	0.44	0.50
Prussian carp	9.0	20.2	40.0	103		0.03	0.28	0.50
Pumkinseed	3.5	10.5	17.0	13		0.25	0.43	0.50
Racer goby	3.5	7.0	9.5	14		0.25	0.43	0.50
Roach	2.5	8.8	21.0	148		0.01	0.34	0.60
Round goby	4.0	8.3	15.0	252		0.50	0.50	0.50
Rudd	8.0	12.1	20.0	6		0.05	0.23	0.30
Sabre carp	13.5	19.7	27.0	3		0.50	0.50	0.50
Schraetser	9.0	12.7	20.0	8		0.30	0.45	0.50
Spined loach	7.5	10.3	12.5	5		0.50	0.50	0.50
Stellate tadpole-goby	4.0	4.0	4.0	2		0.50	0.50	0.50
Stone moroko	4.5	5.6	6.5	7		0.25	0.36	0.40
Tubenose goby	3.0	4.0	5.5	10		0.01	0.15	0.40
Ukrainian lamprey	12.5	14.7	19.0	6		0.50	0.50	0.50
Weatherfish	17.5	19.1	21.5	6		0.25	0.29	0.40
Wels catfish	11.0	25.4	52.0	6		0.25	0.46	0.50
White bream	5.0	8.3	14.0	34		0.25	0.47	0.50
White-finned gudgeon	6.0	8.1	9.5	16		0.50	0.50	0.50
38 species		Sum	5,443					

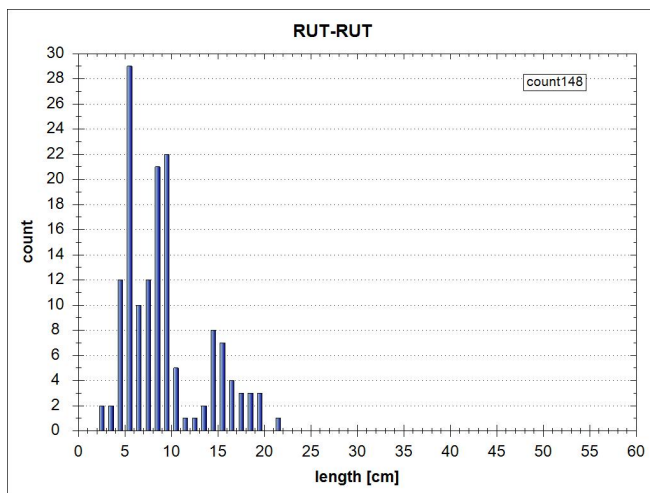
Population structure of dominant species and subdominant species (total catch)



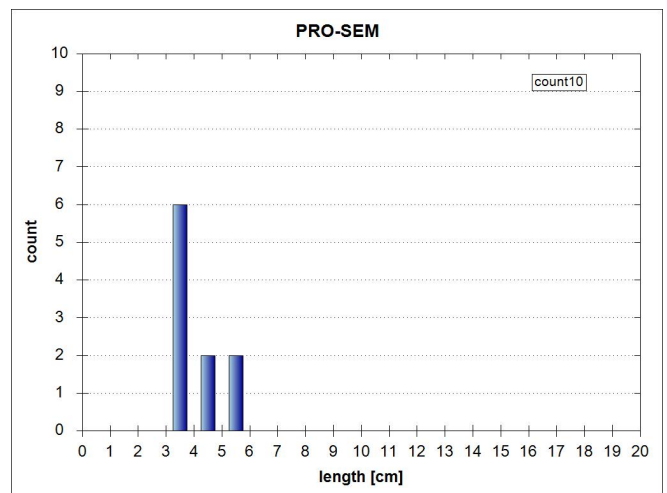
Bleak (*Alburnus alburnus*), 1



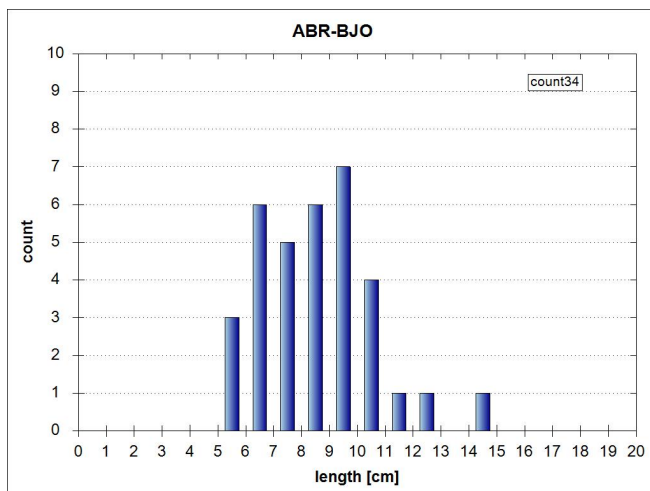
Prussian carp (*Carassius gibelio*), 1



Roach (*Rutilus rutilus*), 1

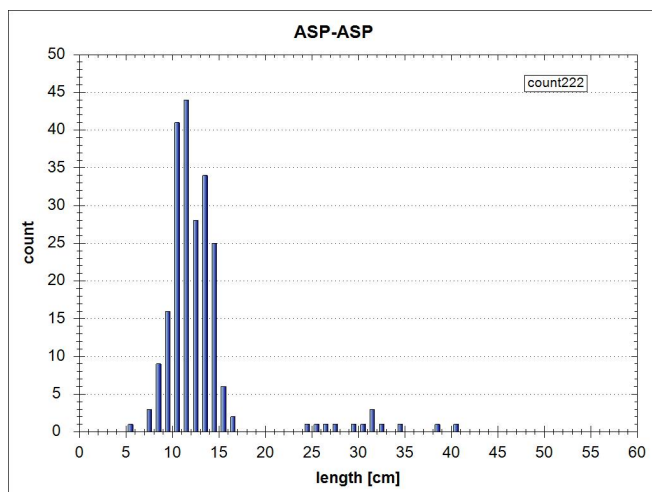
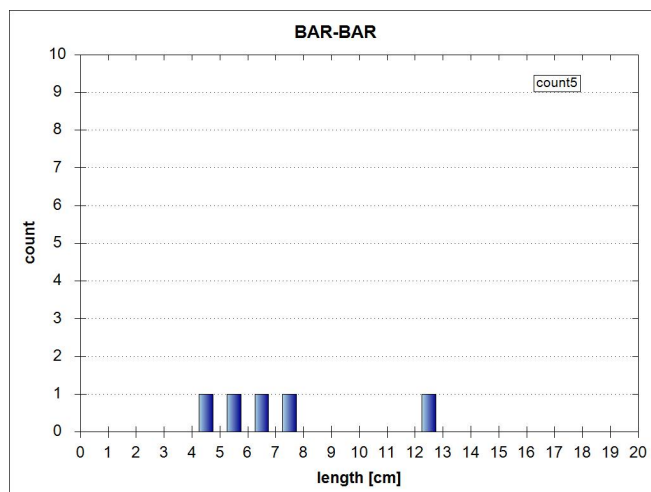
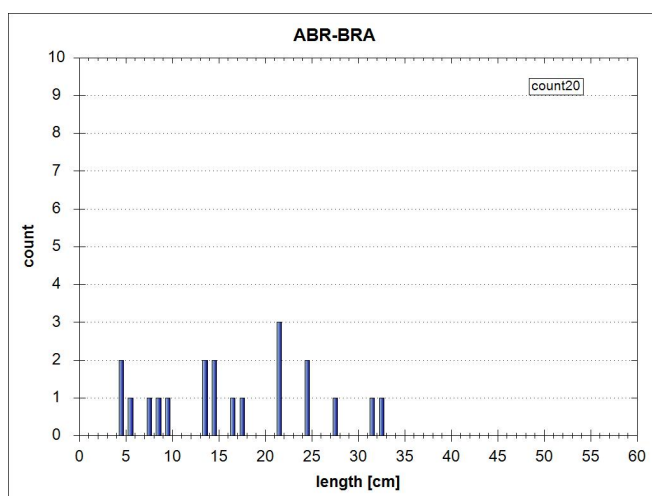
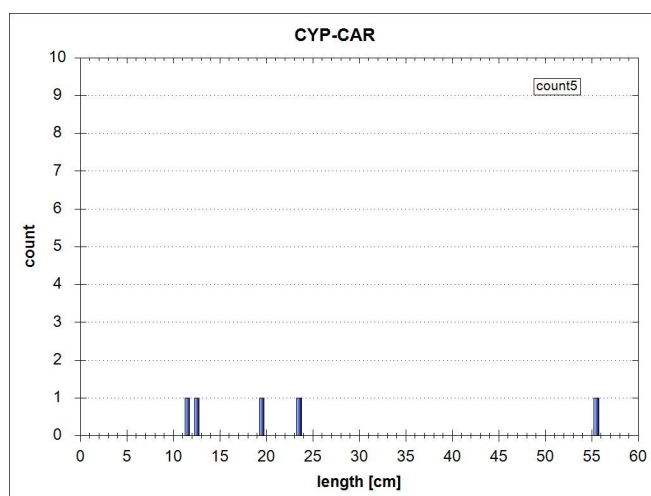
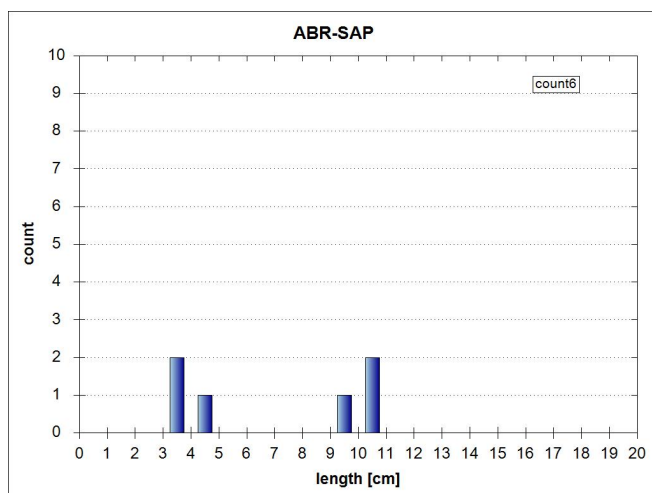
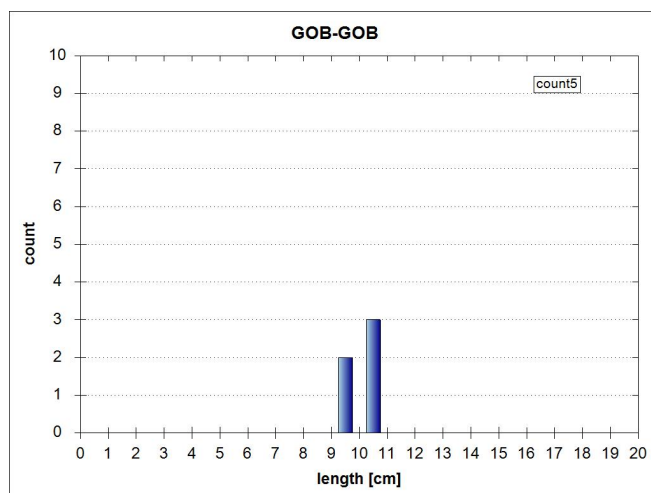


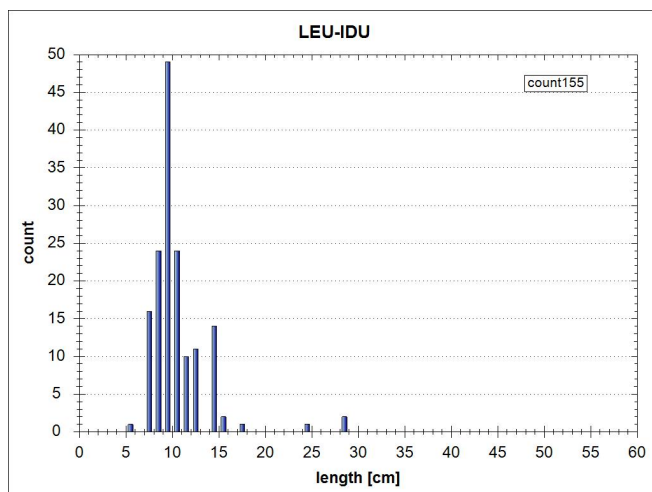
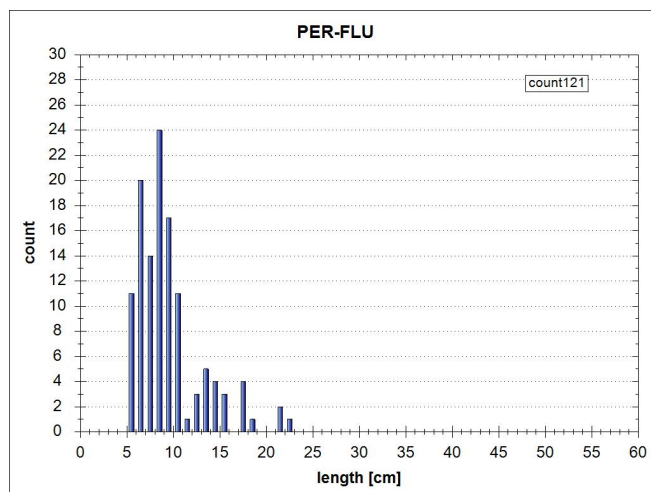
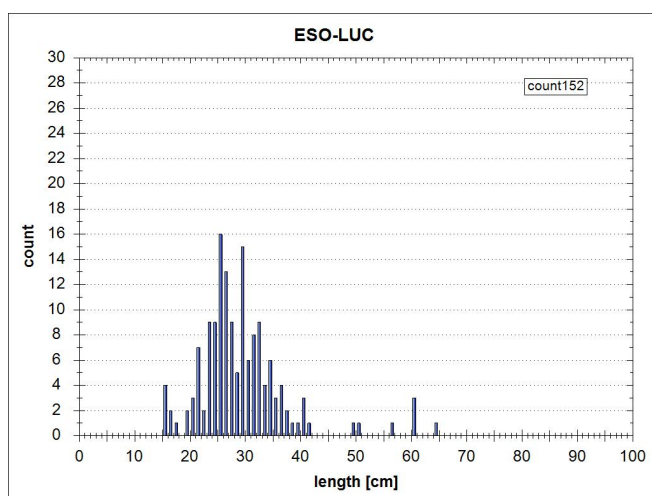
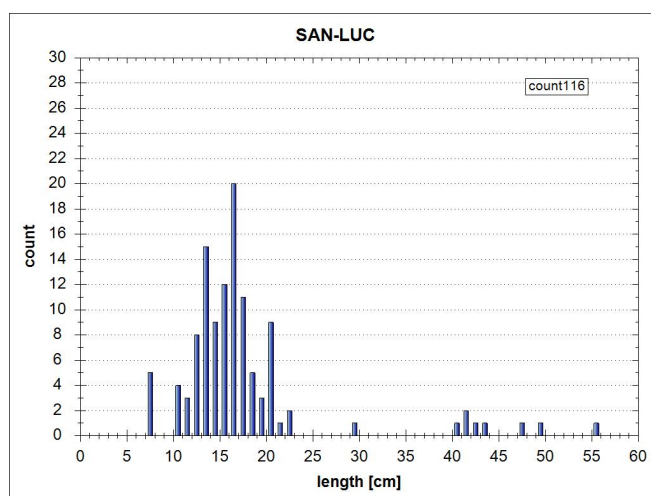
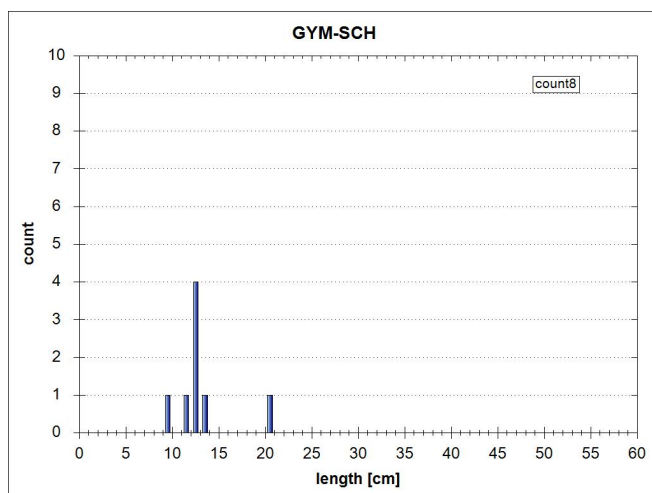
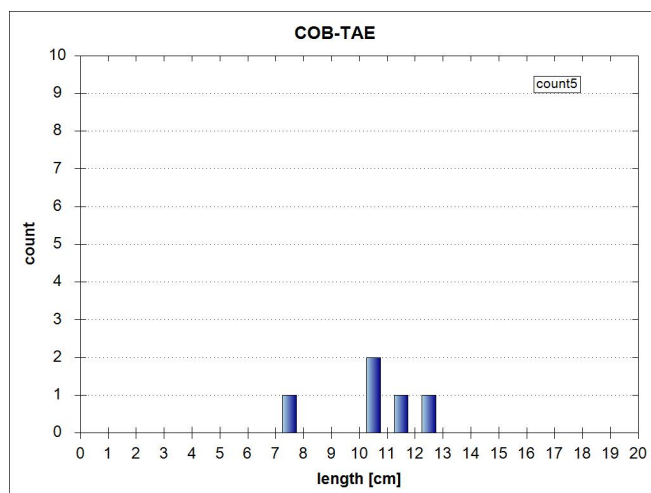
Tubenose goby (*Proterorhinus semilunaris*), 2

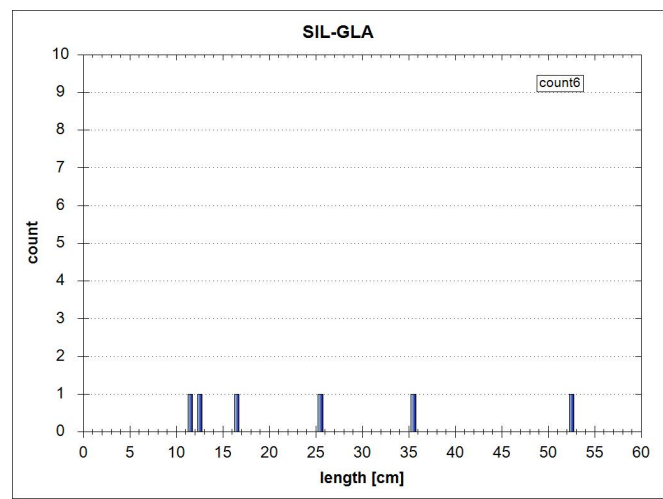


White bream (*Blicca bjoerkna*), 3

Pic. 5: Length-frequency diagram of dominant species (n>3), Sep. 2013

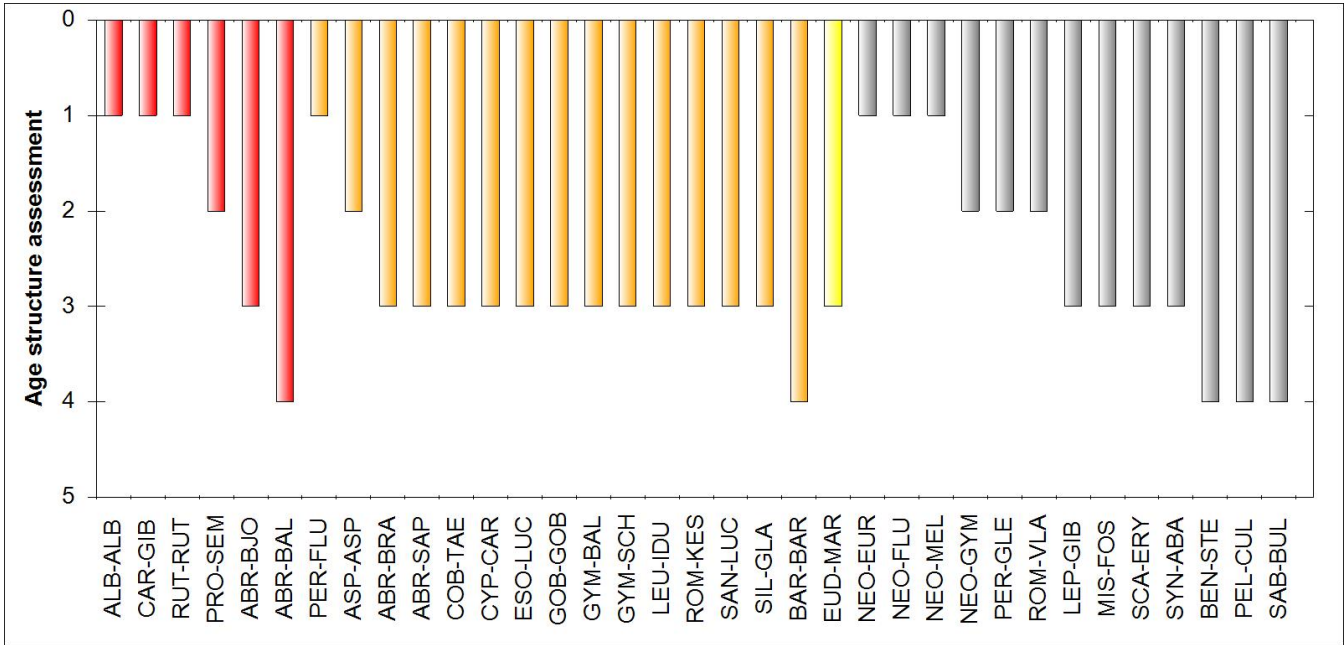
Asp (*Aspius aspius*), 2Barbel (*Barbus barbus*), 4Bream (*Abramis brama*), 3Carp (*Cyprinus carpio*), 3Danube bream (*Abramis sapa*), 3Gudgeon (*Gobio gobio*), 3

Ide (*Leuciscus idus*), 3Perch (*Perca fluviatilis*), 1Pike (*Esox lucius*), 3Pikeperch (*Sander lucioperca*), 3Schraetser (*Gymnocephalus schraetser*), 3Spined loach (*Cobitis taenia*), 3



Wels catfish (*Silurus glanis*), 3

Pic. 6: Length-frequency diagram of subdominant species (n>3), Sep. 2013



Pic. 7: Age structure of present species

Comment on population structure of dominat and subdominant species

- no comment -

Fish ecological assessment (FIA, FISH INDEX AUSTRIA)

Table 7: fish ecologic assessment, Danube, Velika Morava downstream, RS_JDS57, 9/7/2013

Rating					
Stock data	Abundance Ind/ha	Biomass kg/ha			ko-criterion biomass
	11,160.0	152.3			OK
1. Species	Reference fish assemblage	actual (current)	Ratio/Deviation	Partial rating	
Species					
Dominant species	7	6	86%	3.0	
Subdominant species	19	15	79%	1.0	
Rare species	8	1	13%	3.0	
				2.3	
Ecological guilds					
Flow	5	3	2	3.0	
Reproduction	6	5	1	2.0	
				2.5	
Species diversity & guilds overall					2.4
2. Dominance	Reference fish assemblage	actual (current)	Difference		
Fish region index	6.4	6.4	0.0		1.0
3. Population structure	Reference fish assemblage	actual (current)		Partial rating (1-5)	
Dominant species	7	6		2.4	
Subdominant species	19	15		3.3	
					2.7
Fishindex Austria without active ko-criterion					2.34
Biological quality element fish		FIA 2.34	Class 2	Good	

Date of Assessment:3/3/2014

Comment BAW-IGF

- no comment -

Discussion of fish ecological assessment, plausibility, deficits and measures (AN)

Recommended improvements with priority ranking if possible;