

**Danube****Szob, HU\_JDS26 (HU\_JDS26 ), 26.August 2013****FDA\_ID 233**

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



Pic. 2: Monitoring site Szob, HU\_JDS26

**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, 26.August 2013**

Biological quality element fish	FIA 4.00	Class 4	Poor
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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 siteSzob, HU\_JDS26

Watercourse name	<b>Danube</b>	Federal state	<b>not available</b>
Monitoring site	<b>Szob, HU_JDS26</b>	District	
Monitoring site number	<b>HU_JDS26</b>	Community	
Turnus number		Longitude (WGS 84, decimal) O	<b>18.9052</b>
sampling number		Latitude (WGS 84, decimal) N	<b>47.79456</b>
Survey-ID (FDA)	<b>233</b>	Route-ID	
Date	<b>8/26/2013</b>	River-km [monitoring site]	
Contracting authority	<b>ICPDR</b>	Number of planing area	
Contractor	<b>BAW-IGF</b>	Detail waterbody	
Project manager	<b>Vinzenz Bammer</b>		
Reason of survey	<b>JDS 3</b>		
Fishing category			
Bioregion		Waters ordinal number	<b>09</b>
Fish bioregion	<b>Hungarian Danube Bend (1789,5-1497) (5)</b>	Huet-zonation	<b>bream zone</b>
Biocenotic Region	<b>Epipotamon large</b>	Adapt. Reference	<b>115</b>
River km from	<b>1,705.0</b>	Altitude [m.a.s]	<b>102</b>
River km to	<b>1,700.0</b>	Ø catchment basin [km²]	<b>183,500</b>
Section length [m]	<b>5,000</b>	Catchment-class	<b>more than 10.000km²</b>
Ø channel width [m]	<b>600</b>	Slope [‰]	<b>0.08</b>
Original stream character	<b>lowland stream -river</b>	Discharge regime	
Actual site character			
Actual impact		Reference watergauge (name, number)	
Flow [semiquant.]		Distance from source [km]	<b>1,142.0</b>
Average water depth [m]		Lake above	<b>No</b>
Maximum water depth [m]		Distance lake upstream [km]	
Geology	<b>calcareous</b>	Lake below	
Influence of sediment transport	<b>slightly affected</b>	Distance lake downstream [km]	
Ø wetted width [m]	<b>575</b>	Flow condition	
pH-value		Visible depth	
SBV		Fishing conditions	
Water temperature [°C] (F117)		Average annual air temperature [°C]	<b>10.9</b>
Conductance, 25°C [µS/cm] (F118)			
Methods used and effort			
<b>Strip-fishing, day</b>		Number of runs	<b>1</b>
Fished length [m]	<b>3,020</b>	E-devices output [kW]	<b>11</b>
Fished area [m²]	<b>8,760</b>	Output voltage	<b>600/300</b>
		Number of anodes	
		Number of strips/sections	<b>10</b>
and additional methods	<b>Fished area [m²]</b>	additional methods	<b>Effort [UE]</b>
E-Fishing by night	<b>11,775</b>		

### Comments on survey:

- no data -

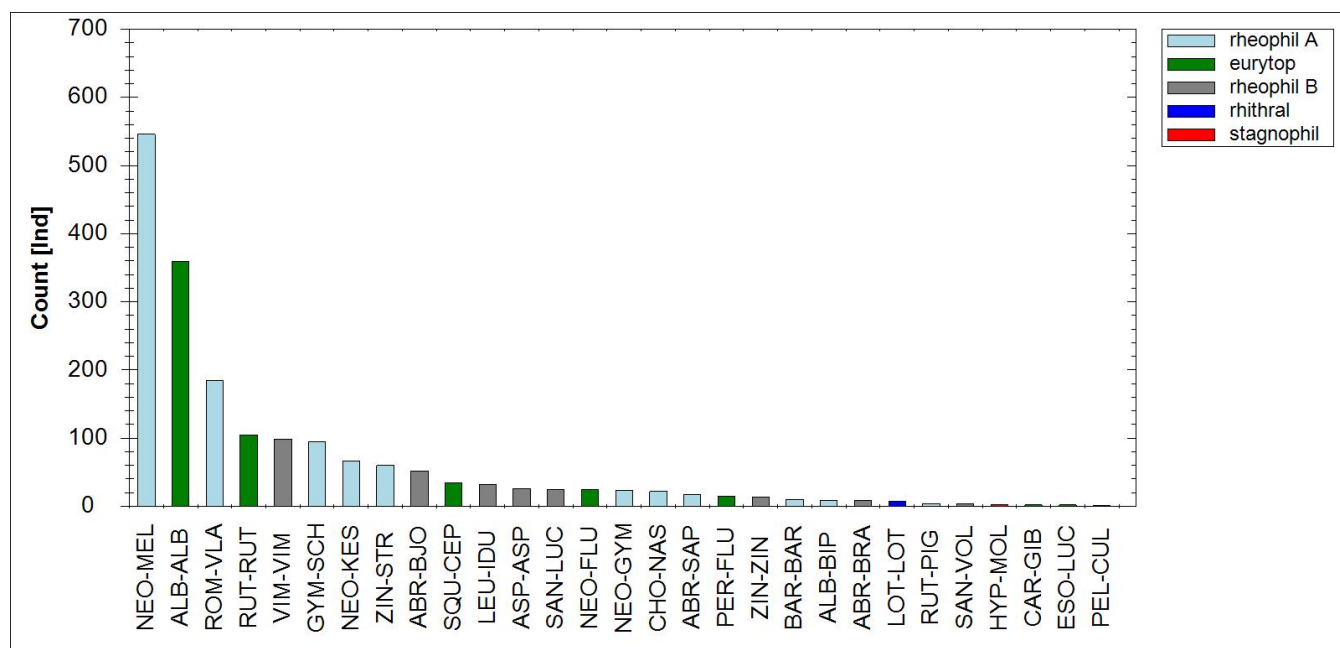
Table 2: Sampling effort at the monitoring site Szob, HU\_JDS26, August 2013

Habitat	Str. no	DG	Length [m]	Width [m]	UE	Method
rip-rap	1	1	100	1.5		E-fishing day boat
rip-rap	2	1	350	3		E-fishing day boat
rip-rap	7	1	350	3		E-fishing day boat
rip-rap	8	1	100	1.5		E-fishing day boat
rip-rap	9	1	350	3		E-fishing night
rip-rap	10	1	130	1.5		E-fishing night
rock	21	1	500	3		E-fishing night
rock	22	1	500	3		E-fishing night
rock	23	1	500	3		E-fishing night
rock	24	1	500	3		E-fishing night
rock	25	1	500	3		E-fishing night
undet. middle of the river	16	1	500	2		electric beam trawl
undet. middle of the river	17	1	500	2		electric beam trawl
undet. middle of the river	18	1	500	2		electric beam trawl
undet. middle of the river	19	1	500	2		electric beam trawl
undet. middle of the river	20	1	500	2		electric beam trawl
gravel bar	1	1	350	3		E-fishing day boat
gravel bar	2	1	350	3		E-fishing day boat
gravel bar	3	1	340	3		E-fishing day boat
gravel bar	4	1	380	3		E-fishing day boat
gravel bar	5	1	350	3		E-fishing day boat
gravel bar	6	1	350	3		E-fishing day boat
gravel bar	7	1	330	3		E-fishing night
gravel bar	8	1	350	3		E-fishing night
gravel bar	9	1	330	3		E-fishing night

Table 3: Habitat weighting used at the monitoring site Szob, HU\_JDS26

Habitat	%
gravel bar	70
rip-rap	30
rock	0
undet. middle of the river	0

### Catch result, fish assemblage and threatening status



Pic. 3: Species ranking diagramm of catch results Danube, Szob, HU\_JDS26

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	
Salmonidae	Danube salmon	<i>Hucho hucho</i>	s	II; V	EN	EN	
Cyprinidae	Asp	<i>Aspius aspius</i>	b	II	EN	DD	26
	Barbel	<i>Barbus barbus</i>	I	V	NT	LC	10
	Bitterling	<i>Rhodeus amarus</i>	b	II	VU	LC	
	Black Sea roach	<i>Rutilus meidingeri</i>	s	II; V	EN	EN	
	Bleak	<i>Alburnus alburnus</i>	I	-	LC	LC	359
	Blue bream	<i>Abramis ballerus</i>	b	-	EN		
	Bream	<i>Abramis brama</i>	I	-	LC		8
	Carp	<i>Cyprinus carpio</i>	b	-	EN	DD	
	Chub	<i>Squalius cephalus</i>	s	-	LC	LC	35
	Crucian carp	<i>Carassius carassius</i>	b	-	EN	LC	
	Dace	<i>Leuciscus leuciscus</i>	b	-	NT	LC	
	Danube barbel	<i>Barbus balcanicus</i>	s	II	CR	NT	
	Danube roach	<i>Rutilus pigus</i>	b	II; V	EN	DD	4
	Danubian gudgeon	<i>Romanogobio uranoscopus</i>	s	II	CR	DD	
	Gudgeon	<i>Gobio gobio</i>	b	-	LC	LC	
	Ide	<i>Leuciscus idus</i>	I	-	EN	LC	32
	Kessler's gudgeon	<i>Romanogobio kesslerii</i>	s	II	EN	DD	
	Minnow	<i>Phoxinus phoxinus</i>	s	-	NT	LC	
	Nase	<i>Chondrostoma nasus</i>	I	-	NT	LC	22
	Prussian carp	<i>Carassius gibelio</i>	s	-	LC		2
	Roach	<i>Rutilus rutilus</i>	I	-	LC	LC	105
	Rudd	<i>Scardinius erythrophthalmus</i>	s	-	LC	LC	
	Sabre carp	<i>Pelecus cultratus</i>	s	II; V	NT	DD	1
	Spirin	<i>Alburnoides bipunctatus</i>	s	-	LC	LC	9
	Sunbleak	<i>Leucaspis delineatus</i>	s	-	EN	LC	
	Tench	<i>Tinca tinca</i>	s	-	VU	LC	
	Vimba bream	<i>Vimba vimba</i>	b	-	VU	LC	99
	White bream	<i>Blicca bjoerkna</i>	I	-	LC	LC	52
	White-finned gudgeon	<i>Romanogobio vladykovi</i>	b	II	LC	DD	184
Esocidae	Pike	<i>Esox lucius</i>	b	-	NT		2
Gadidae	Burbot	<i>Lota lota</i>	b	-	VU		7
Percidae	Danube ruffe	<i>Gymnocephalus baloni</i>	b	II; IV	VU	DD	
	Perch	<i>Perca fluviatilis</i>	I	-	LC	LC	15
	Pikeperch	<i>Sander lucioperca</i>	I	-	NT	LC	25
	Ruffe	<i>Gymnocephalus cernuus</i>	b	-	LC	LC	
	Schraetser	<i>Gymnocephalus schraetser</i>	b	II; V	VU	VU	95
	Streber	<i>Zingel streber</i>	b	II	EN	VU	60
	Volga pikeperch	<i>Sander volgensis</i>	s	-	EN	DD	4
	Zingel	<i>Zingel zingel</i>	b	II; V	VU	VU	14
Siluridae	Wels catfish	<i>Silurus glanis</i>	b	-	VU	LC	
Cottidae	Bullhead	<i>Cottus gobio</i>	s	II	NT	LC	
Cobitidae	Balkan loach	<i>Sabanejewia balcanica</i>	s	II	EN	DD	
	Danubian spined loach	<i>Cobitis elongatoides</i>	b	-			

Family	English name	Scient. name of species	Reference fish assemblage	FFH	Red List	IUCN	Count
	Weatherfish	<i>Misgurnus fossilis</i>	s	II	CR	NT	
Balitoridae	Danube bream	<i>Abramis sapo</i>	b	-	EN		17
	Stone loach	<i>Barbatula barbatula</i>	s	-	LC	LC	
Acipenseridae	Danube sturgeon	<i>Acipenser gueldenstaedtii</i>	s	V	RE	EN	
	Fringebarbel sturgeon	<i>Acipenser nudiiventris</i>	s	V	RE	EN	
	Giant sturgeon	<i>Huso huso</i>	s	V	RE	EN	
	Starry sturgeon	<i>Acipenser stellatus</i>	s	V	RE	EN	
	Sterlet	<i>Acipenser ruthenus</i>	b	V	CR	VU	
Clupeidae	European mud-minnow	<i>Umbra krameri</i>	s	II	CR	VU	
	Pontic shad	<i>Alosa immaculata</i>	s	-			
Cyprinidae	Silver carp	<i>Hypophthalmichthys molitrix</i>		-			3
Gobiidae	Bighead goby	<i>Neogobius kessleri</i>		-	NE	DD	66
	Monkey goby	<i>Neogobius fluviatilis</i>		-	NE	DD	24
	Racer goby	<i>Neogobius gymnotrachelus</i>		-	NE	DD	23
	Round goby	<i>Neogobius melanostomus</i>		-	NE	DD	546

Observed:: reference fish assemblage 24Taxa :: 55Taxa

Taxa complete 29

Count species of reference fish assemblage 1,187

Total count 1,849

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, Szob, HU\_JDS26, 8/26/2013

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	26	48.4		20.7		30.1	427.0	2	b
Barbel	BAR-BAR	10	5.9		6.3		28.3	1,065.1	3	I
Bighead goby	NEO-KES	66	91.0		0.7		7.4	8.0	1	
Bleak	ALB-ALB	359	709.5		10.0		10.0	14.1	1	I
Bream	ABR-BRA	8	0.0		0.0	0.0	22.7	0.0	3	I
Burbot	LOT-LOT	7	14.4		0.2		11.4	11.5	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
Chub	SQU-CEP	35	39.7		1.5		15.0	37.9	3	s
Danube bream	ABR-SAP	17	0.0		0.0	0.0	9.0	0.0	2	b
Danube roach	RUT-PIG	4	0.0		0.0	0.0	20.8	0.0	3	b
Ide	LEU-IDU	32	28.0		5.1		21.2	182.1	3	l
Monkey goby	NEO-FLU	24	0.0		0.0	0.0	4.9	0.0	3	
Nase	CHO-NAS	22	2.4		4.3		24.1	1,800.0	3	l
Perch	PER-FLU	15	4.2		0.2		13.8	38.6	2	l
Pike	ESO-LUC	2	0.0		0.0	0.0	33.0	0.0	4	b
Pikeperch	SAN-LUC	25	0.0		0.0	0.0	11.9	0.0	3	l
Prussian carp	CAR-GIB	2	0.0		0.0	0.0	21.0	0.0	4	s
Racer goby	NEO-GYM	23	12.0		0.0		5.7	3.0	1	
Roach	RUT-RUT	105	0.0		0.0	0.0	11.8	0.0	1	l
Round goby	NEO-MEL	546	225.2		1.9		5.3	8.3	1	
Sabre carp	PEL-CUL	1	0.0		0.0	0.0	27.0	0.0	4	s
Schraetser	GYM-SCH	95	0.0		0.0	0.0	10.4	0.0	1	b
Silver carp	HYP-MOL	3	0.0		0.0	0.0	73.3	0.0	4	
Spirlin	ALB-BIP	9	21.6		0.0		5.0	1.2	3	s
Streber	ZIN-STR	60	6.3		0.1		7.9	21.3	1	b
Vimba bream	VIM-VIM	99	0.0		0.0	0.0	11.6	0.0	1	b
Volga pikeperch	SAN-VOL	4	0.0		0.0	0.0	18.7	0.0	3	s
White bream	ABR-BJO	52	0.0		0.0	0.0	12.6	0.0	2	l
White-finned gudgeon	ROM-VLA	184	0.0		0.0	0.0	7.9	0.0	1	b
Zingel	ZIN-ZIN	14	0.0		0.0	0.0	11.4	0.0	3	b

24 species of 55

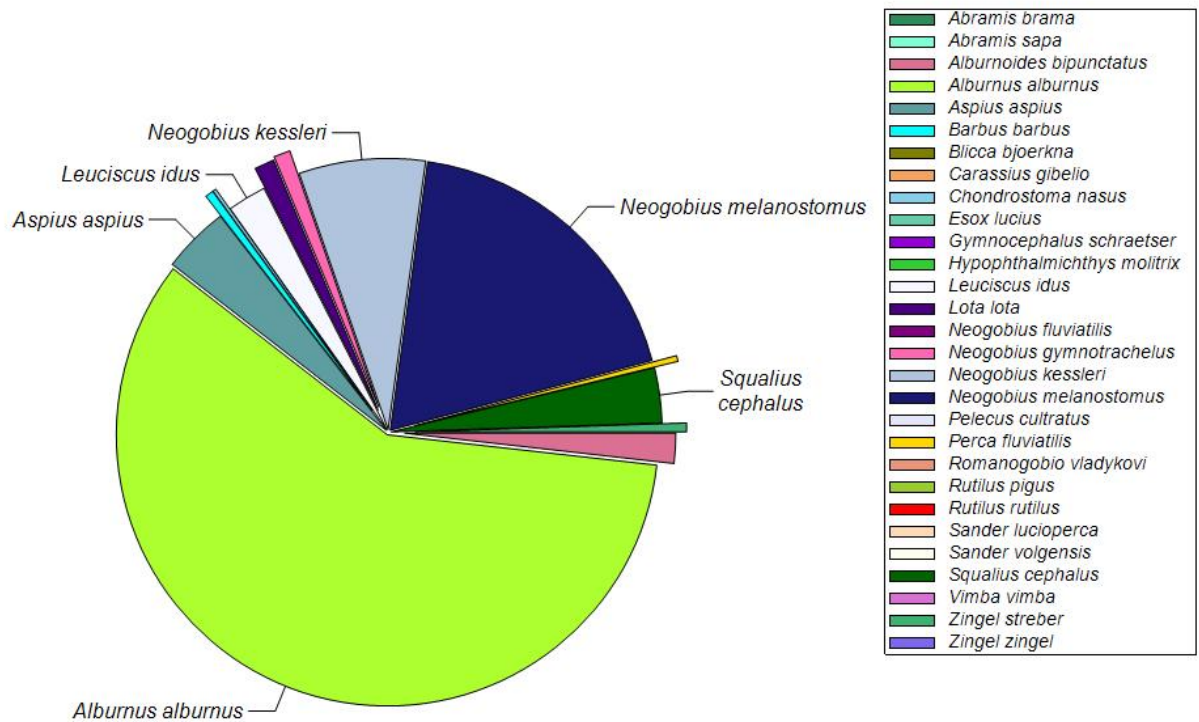
Total

1,849

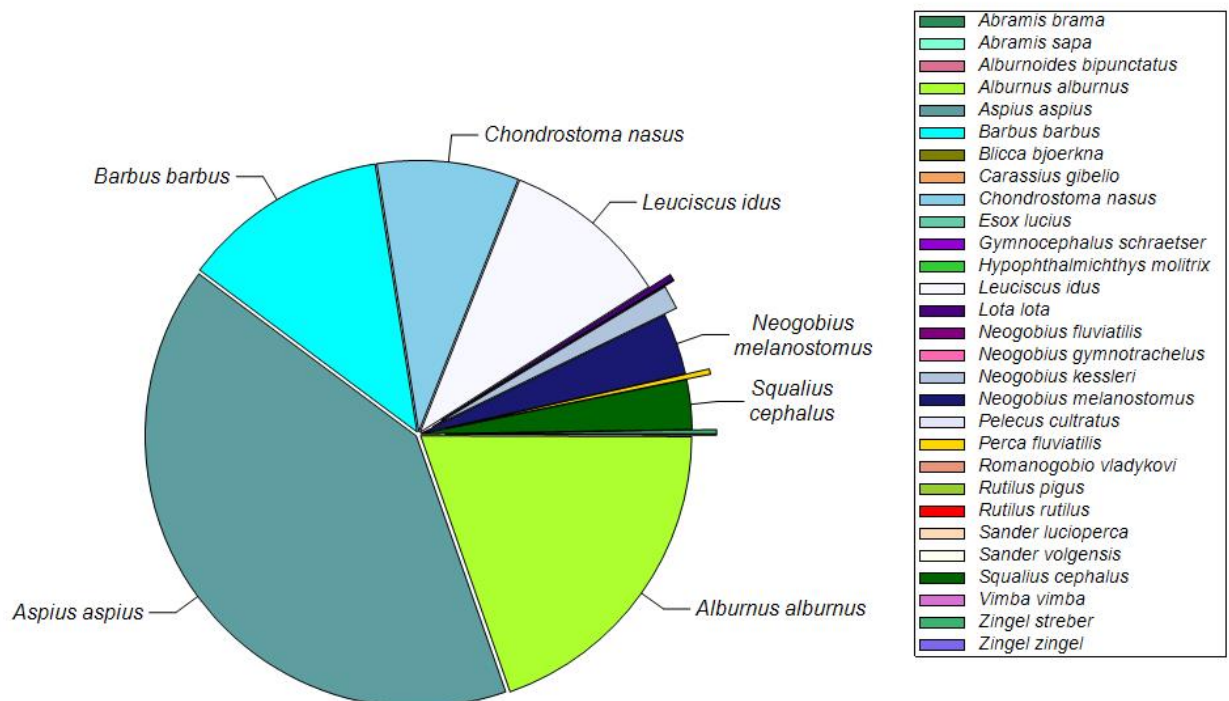
1,208.6

51.0

### Dominance



### Biomass distribution



Pic. 4: Dominance und Biomass distribution



Shannon-Index: 2.412

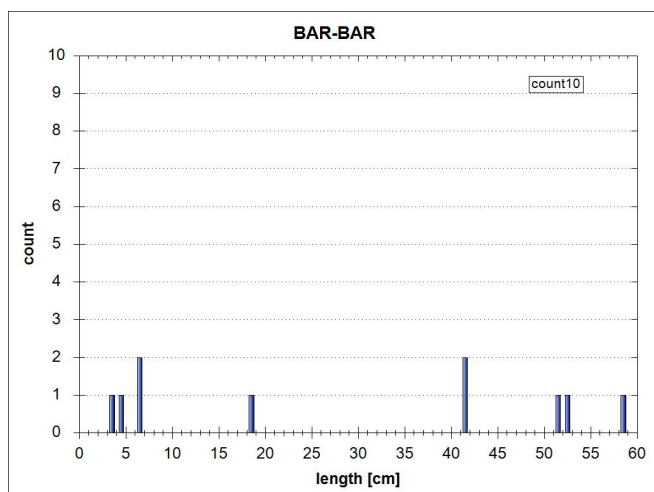
Equitability: 0.716

**Biometrics and catch rate**

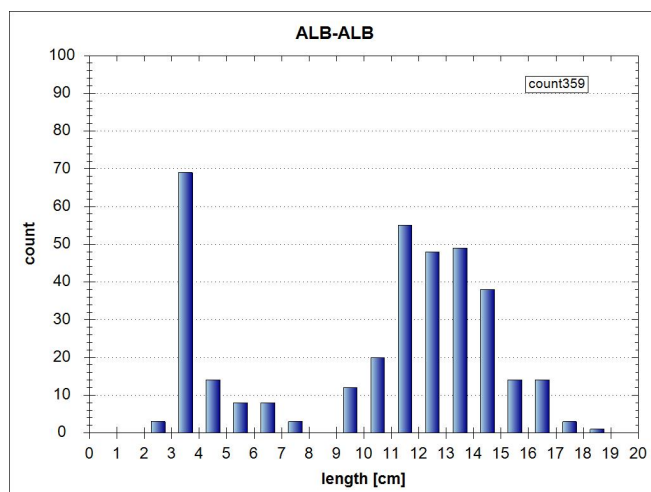
Table 6: biometrics of each species and catch specific parameters

Fish species	Lt [cm]			n	Statist. Method	Catch- Probability [%]	Catch-effectivity		
	Min		Max				Min	MW	Max
Asp	8.0	30.1	55.0	26			0.25	0.48	0.80
Barbel	3.0	28.3	58.0	10			0.30	0.54	0.70
Bighead goby	4.0	7.4	14.0	66			0.20	0.50	0.70
Bleak	2.0	10.0	18.0	359			0.20	0.39	0.80
Bream	13.0	22.7	38.5	8			0.20	0.43	0.50
Burbot	9.0	11.4	12.5	7			0.50	0.50	0.50
Chub	7.0	15.0	33.0	35			0.50	0.51	0.80
Danube bream	4.5	9.0	21.5	17			0.25	0.49	0.50
Danube roach	9.8	20.8	25.0	4			0.50	0.50	0.50
Ide	6.5	21.2	49.0	32			0.30	0.47	0.80
Monkey goby	3.0	4.9	14.1	24			0.25	0.47	0.50
Nase	11.5	24.1	51.5	22			0.50	0.50	0.50
Perch	7.0	13.8	25.0	15			0.20	0.44	0.70
Pike	19.0	33.0	47.0	2			0.50	0.50	0.50
Pikeperch	6.7	11.9	35.0	25			0.20	0.46	0.50
Prussian carp	14.0	21.0	28.0	2			0.50	0.50	0.50
Racer goby	2.7	5.7	11.5	23			0.50	0.55	0.70
Roach	4.5	11.8	29.0	105			0.20	0.46	0.50
Round goby	1.9	5.3	17.0	546			0.50	0.61	0.70
Sabre carp	27.0	27.0	27.0	1			0.50	0.50	0.50
Schraetser	2.2	10.4	18.0	95			0.20	0.48	0.70
Silver carp	70.0	73.3	80.0	3			0.50	0.50	0.50
Spirlin	4.0	5.0	5.5	9			0.50	0.50	0.50
Streber	4.4	7.9	15.5	60			0.25	0.68	0.70
Vimba bream	5.0	11.6	36.5	99			0.20	0.38	0.70
Volga pikeperch	5.4	18.7	28.0	4			0.25	0.44	0.50
White bream	3.6	12.6	25.0	52			0.20	0.42	0.70
White-finned gudgeon	2.7	7.9	14.0	184			0.20	0.49	0.70
Zingel	7.7	11.4	33.5	14			0.50	0.56	0.70
29 species			Sum	1,849					

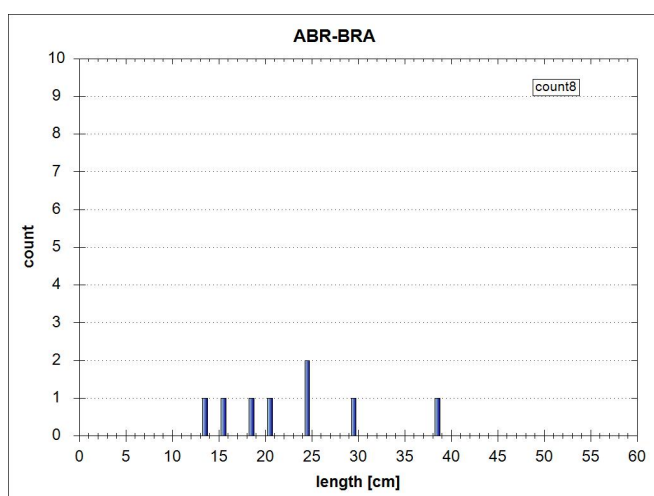
## Population structure of dominant species and subdominant species (total catch)



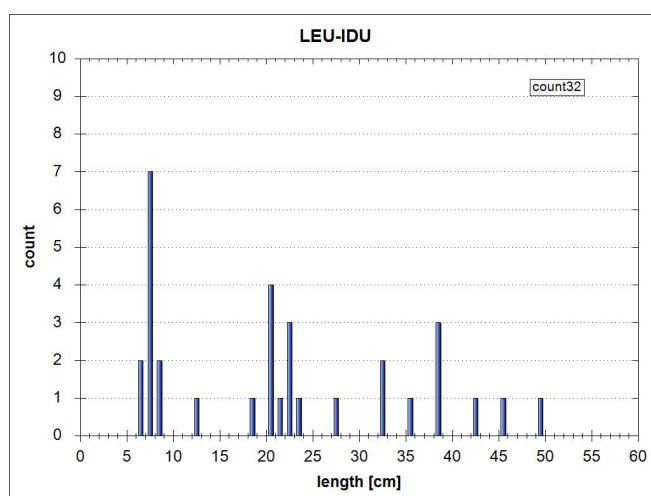
Barbel (*Barbus barbus*), 3



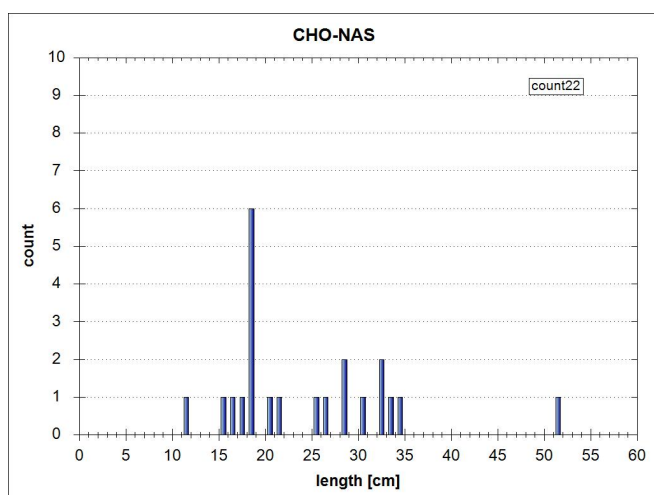
Bleak (*Alburnus alburnus*), 1



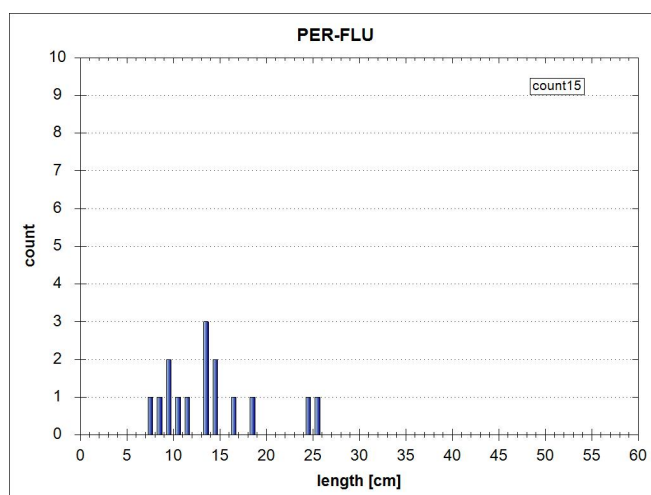
Bream (*Abramis brama*), 3



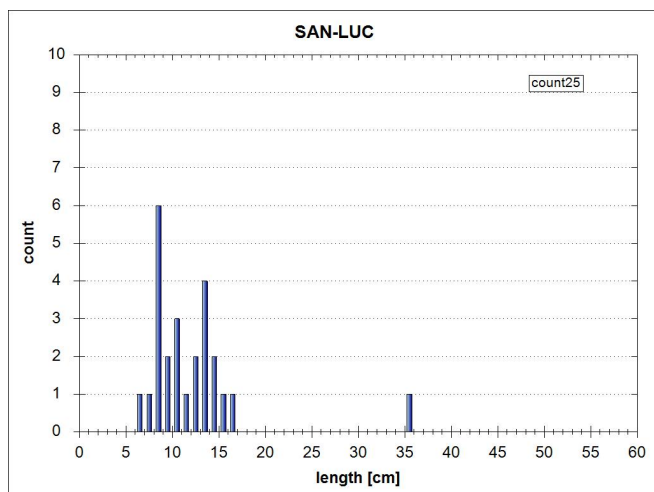
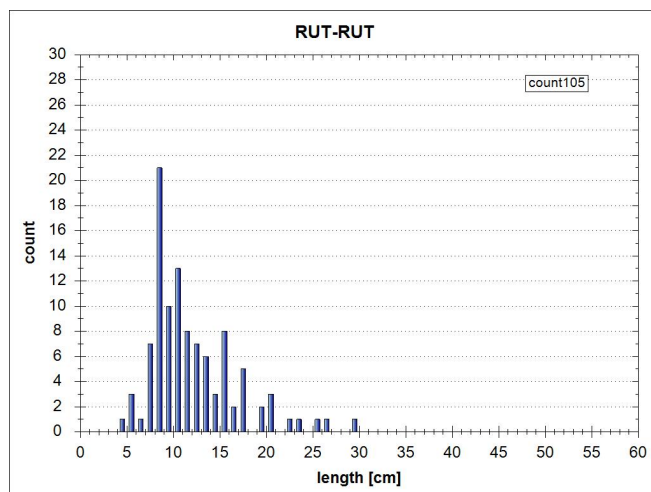
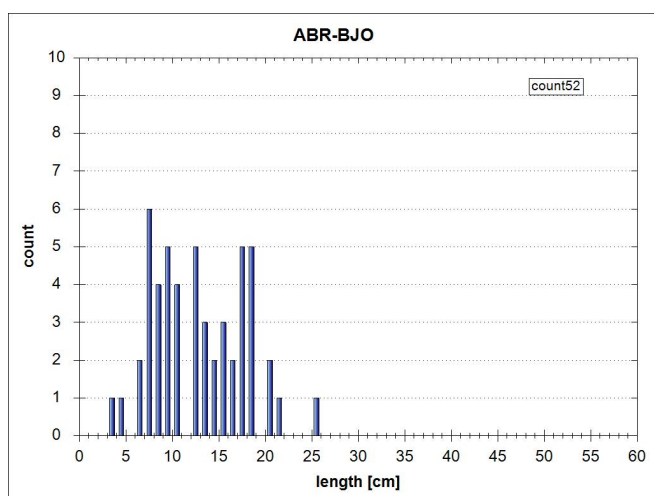
Ide (*Leuciscus idus*), 3



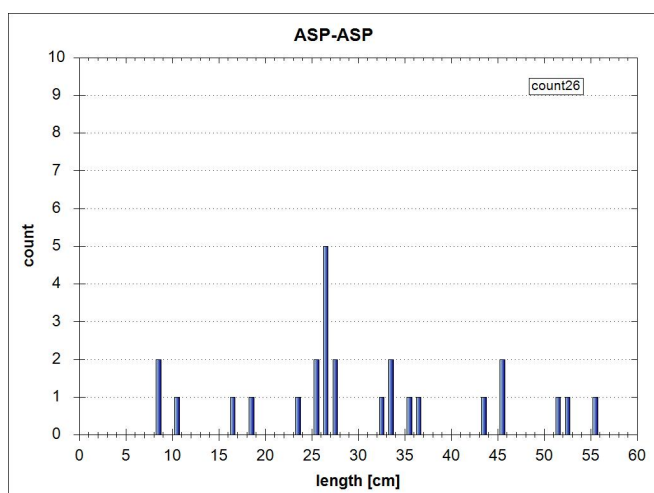
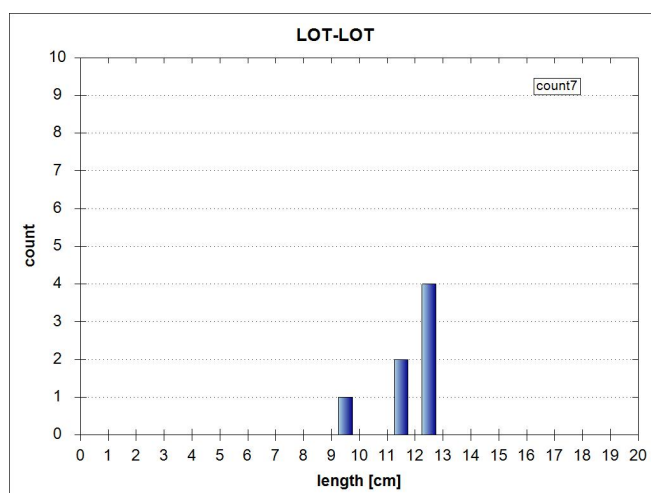
Nase (*Chondrostoma nasus*), 3

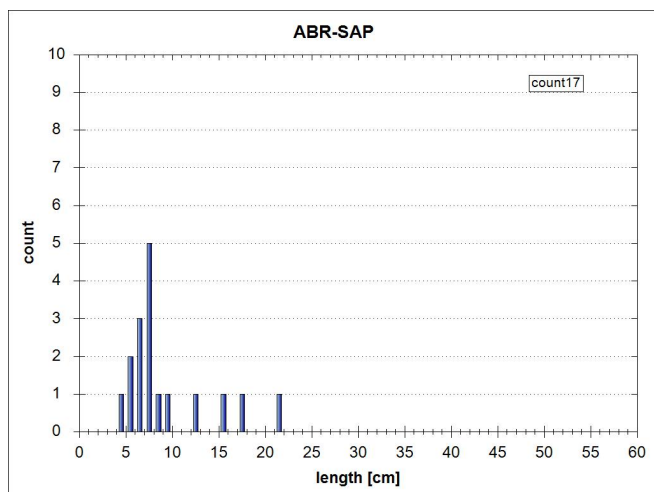
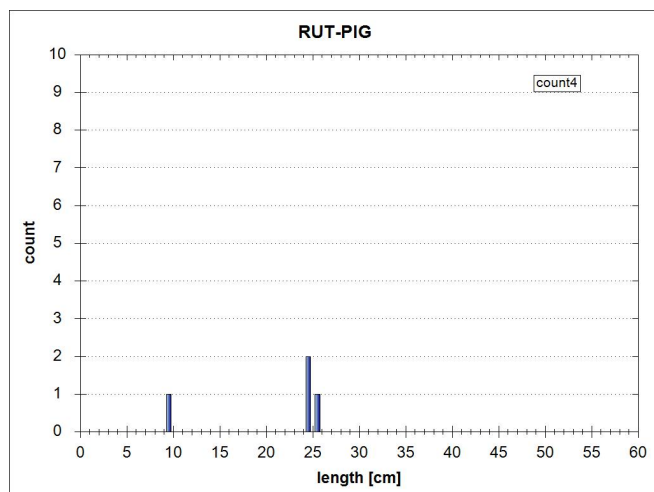
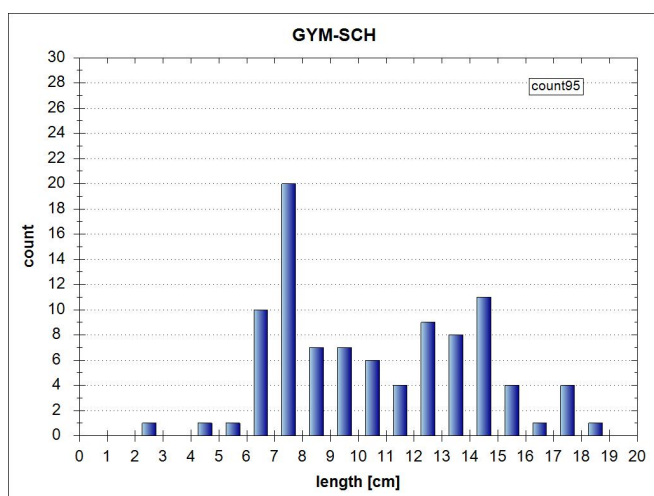
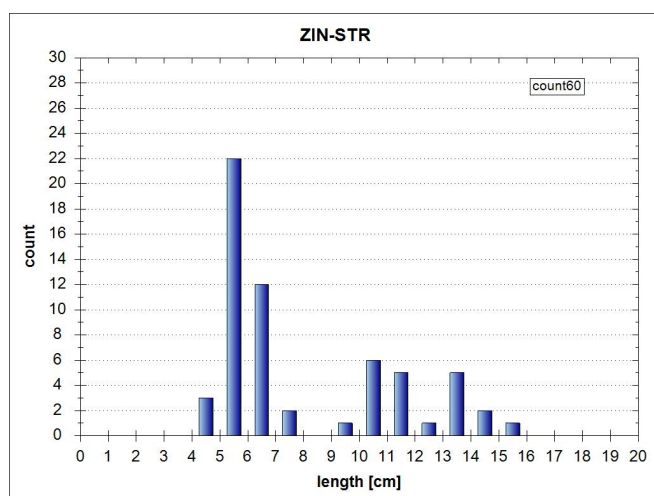
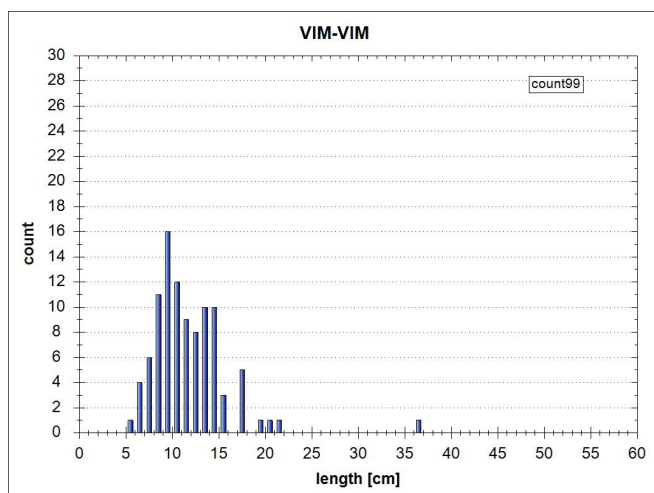
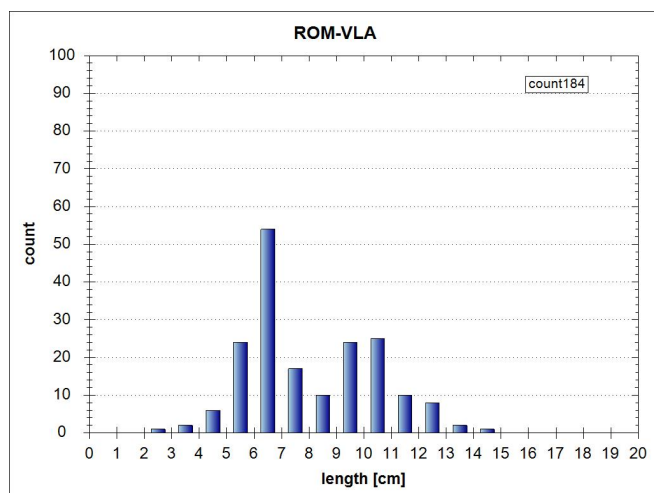


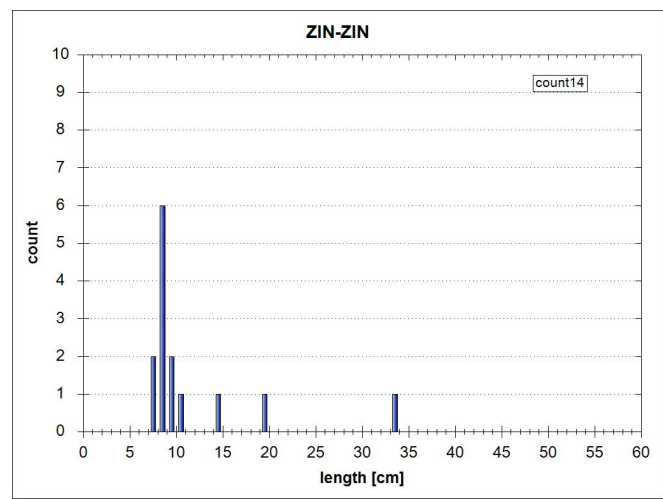
Perch (*Perca fluviatilis*), 2

Pikeperch (*Sander lucioperca*), 3Roach (*Rutilus rutilus*), 1White bream (*Blicca bjoerkna*), 2

Pic. 5: Length-frequency diagram of dominant species (n&gt;3), Aug. 2013

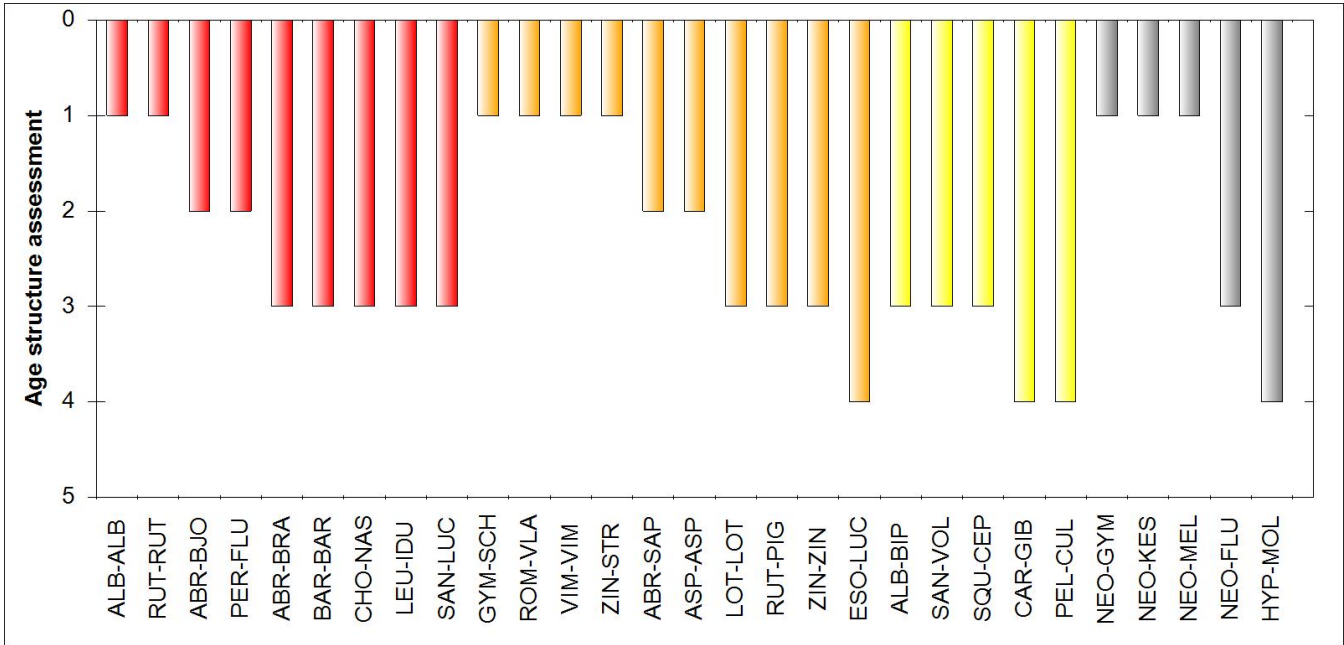
Asp (*Aspius aspius*), 2Burbot (*Lota lota*), 3

Danube bream (*Abramis sapo*), 2Danube roach (*Rutilus pigus*), 3Schraetser (*Gymnocephalus schraetser*), 1Streber (*Zingel streber*), 1Vimba bream (*Vimba vimba*), 1White-finned gudgeon (*Romanogobio vladkovii*), 1



Zingel (*Zingel zingel*), 3

Pic. 6: Length-frequency diagram of subdominant species (n>3), Aug. 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, Szob, HU\_JDS26, 8/26/2013

Rating					
Stock data	Abundance Ind/ha	Biomass kg/ha			ko-criterion biomass
	880.5	48.4		ko-crit	4
<b>1. Species</b>	<b>Reference fish assemblage</b>	<b>actual (current)</b>	<b>Ratio/Deviation</b>	<b>Partial rating</b>	
<b>Species</b>					
Dominant species	9	9	100%	1.0	
Subdominant species	21	10	48%	3.0	
Rare species	25	5	20%	2.0	
				2.0	
<b>Ecological guilds</b>					
Flow	5	4	1	2.0	
Reproduction	7	4	3	4.0	
				3.0	
<b>Species diversity &amp; guilds overall</b>					<b>2.0</b>
<b>2. Dominance</b>	<b>Reference fish assemblage</b>	<b>actual (current)</b>	<b>Difference</b>		
<b>Fish region index</b>	6.4	6.4	0.0		<b>1.0</b>
<b>3. Population structure</b>	<b>Reference fish assemblage</b>	<b>actual (current)</b>		<b>Partial rating (1-5)</b>	
Dominant species	9	9		2.3	
Subdominant species	21	10		3.6	
					<b>2.8</b>
Fishindex Austria without active ko-criterion					<b>2.21</b>
<b>Biological quality element fish</b>		<b>FIA 4.00</b>	<b>Class 4</b>	<b>Poor</b>	

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;*