Danube

Upstream Drava, Aljmas, HR_JDS41 (HR_JDS41), 30.August 2013 FDA_ID 236

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

Pic. 2: Monitoring site Upstream Drava, Aljmas, HR_JDS41

Description of monitoring site

- no data -

Assessment

Estimated assessment of the ecological status class (FÖZ)

Biological quality element fish	No action required (2)

Ecological status class, current survey, 30.August 2013

Biological quality element fish	FIA 2.56	Class 3	Moderate

Former classifications

None				
None				
None				

Information about and sampling conditions and location

Table 1: Key data and information on sampling, monitoring siteUpstream Drava, Aljmas, HR_JDS41

Watercourse name	**Danube**	Federal state	**not availabvle**
Monitoring site	**Upstream Drava, Aljmas, HR_JDS41**	District	
Monitoring site number	**HR_JDS41**	Community	
Turnus number		Longitude (WGS 84, decimal) O	**18.92696**
sampling number		Latitude (WGS 84, decimal) N	**45.54372**
Survey-ID (FDA)	**236**	Route-ID	
Date	**8/30/2013**	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	**bream zone**
Biocenotic Region	**Metapotamon**	Adapt. Reference	**113**
River km mean	**1,380.0**	Altidude [m.a.s]	**82**
		Ø catchment basin [km²]	**210,300**
Section length [m]	**3,000**	Catchment-class	**more than 10.000km²**
Ø channel width [m]	**470**	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]	**1,466.0**
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]	**470**	Flow condition	
pH-value		Visible depth	
SBV		Fishing conditions	
Water temperature [°C] (F117)		Average annual air temperature [°C]	**11.2**
Conductance, 25°C [µS/cm] (F118)			
Methods used and effort			
Strip-fishing, day		Number of runs	**1**
Fished length [m]	**3,210**	E-devices output [kW]	**11**
Fished area [m²]	**9,435**	Output voltage	**600**
		Number of anodes	
		Number of strips/sections	**10**
and additional methods	**Fished area [m²]**	additional methods	**Effort [UE]**
E-Fishing by night	**3,675**		

Comments on survey:

- no data -

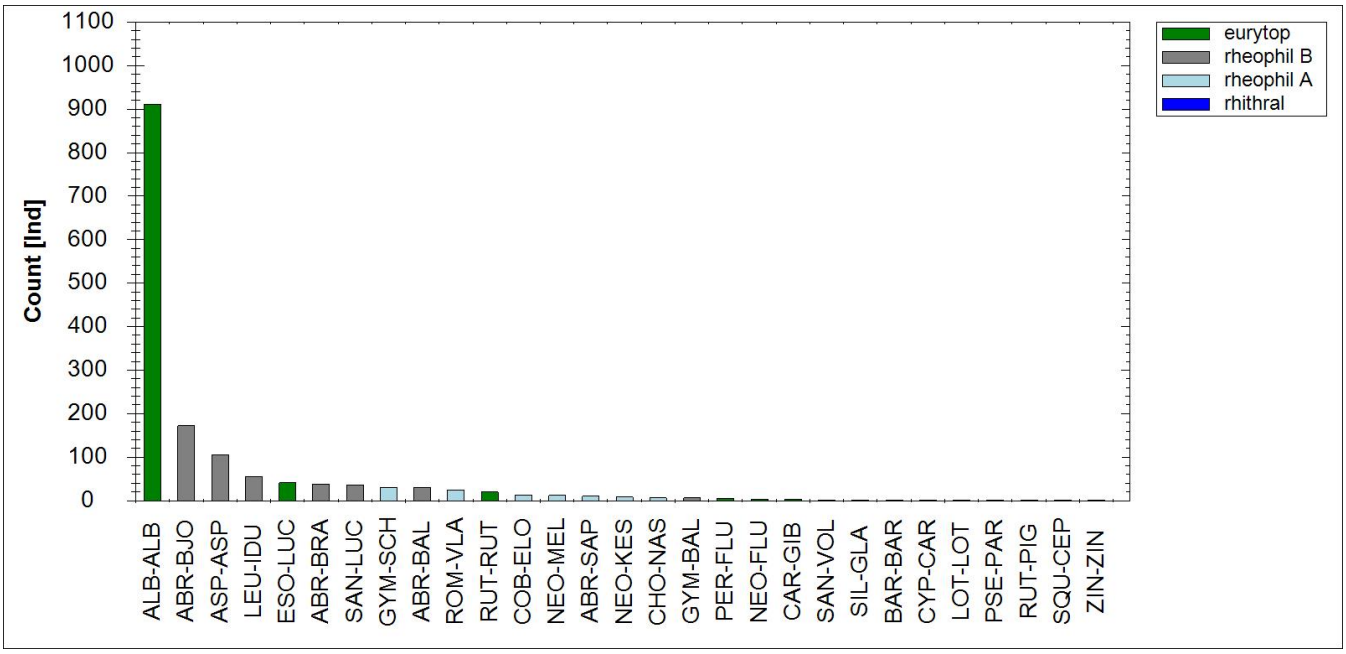
Table 2: Sampling effort at the monitoring site Upstream Drava, Aljmas, HR_JDS41, August 2013

Habitat	Str. no	DG.	Length [m]	Width [m]	UE	Method
rip-rap	1	1	130	1.5		E-fishing day boat
rip-rap	4	1	350	3		E-fishing day boat
rip-rap	11	1	110	1.5		E-fishing night
rip-rap	12	1	260	3		E-fishing night
rip-rap	13	1	290	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
other natural bank	2	1	400	3		E-fishing day wading
other natural bank	3	1	400	3		E-fishing day wading
other natural bank	5	1	280	3		E-fishing day wading
other natural bank	6	1	400	3		E-fishing day wading
other natural bank	7	1	400	3		E-fishing day wading
other natural bank	8	1	250	3		E-fishing day wading
other natural bank	9	1	300	3		E-fishing day wading
other natural bank	10	1	300	3		E-fishing day wading
other natural bank	14	1	320	3		E-fishing night
other natural bank	15	1	300	3		E-fishing night

Table 3: Habitat weighting used at the monitoring site Upstream Drava, Aljmas, HR_JDS41

Habitat	%
other natural bank	30
rip-rap	70
undet. middle of the river	0

Catch result, fish assemblage and threatening status



Pic. 3: Species ranking diagramm of catch resultsDanube, Upstream Drava, Aljmas, HR_JDS41

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	*Eudontomyzon mariae*	s	II	VU	DD	
Cyprinidae	Asp	*Aspius aspius*	b	II	EN	DD	106
	Barbel	*Barbus barbus*	b	V	NT	LC	1
	Bleak	*Alburnus alburnus*	l	-	LC	LC	911
	Blue bream	*Abramis ballerus*	l	-	EN		30
	Bream	*Abramis brama*	b	-	LC		38
	Carp	*Cyprinus carpio*	b	-	EN	DD	1
	Chub	*Squalius cephalus*	s	-	LC	LC	1
	Danubian gudgeon	*Romanogobio uranoscopus*	s	II	CR	DD	
	Gudgeon	*Gobio gobio*	b	-	LC	LC	
	Ide	*Leuciscus idus*	b	-	EN	LC	55
	Kessler's gudgeon	*Romanogobio kesslerii*	b	II	EN	DD	
	Nase	*Chondrostoma nasus*	b	-	NT	LC	6
	Prussian carp	*Carassius gibelio*	l	-	LC		3
	Roach	*Rutilus rutilus*	l	-	LC	LC	20
	Tench	*Tinca tinca*	s	-	VU	LC	
	Vimba bream	*Vimba vimba*	l	-	VU	LC	
	White bream	*Blicca bjoerkna*	l	-	LC	LC	172
Esocidae	Pike	*Esox lucius*	b	-	NT		41
Gadidae	Burbot	*Lota lota*	b	-	VU		1
Percidae	Danube ruffe	*Gymnocephalus baloni*	b	II; IV	VU	DD	6
	Perch	*Perca fluviatilis*	b	-	LC	LC	5
	Pikeperch	*Sander lucioperca*	b	-	NT	LC	36
	Ruffe	*Gymnocephalus cernuus*	b	-	LC	LC	
	Schraetser	*Gymnocephalus schraetser*	b	II; V	VU	VU	31
	Volga pikeperch	*Sander volgensis*	s	-	EN	DD	2
	Zingel	*Zingel zingel*	s	II; V	VU	VU	1
Siluridae	Wels catfish	*Silurus glanis*	b	-	VU	LC	2
Gobiidae	Tubenose goby	*Proterorhinus semilunaris*	l	-	EN	LC	
Cobitidae	Spined loach	*Cobitis taenia*	b	II	VU	LC	
Balitoridae	Danube bream	*Abramis sapa*	b	-	EN		10
Acipenseridae	Danube sturgeon	*Acipenser gueldenstaedtii*	s	V	RE	EN	
	Fringebarbel sturgeon	*Acipenser nudiventris*	s	V	RE	EN	
	Sterlet	*Acipenser ruthenus*	b	V	CR	VU	
Cyprinidae	Danube roach	*Rutilus pigus*		II; V	EN	DD	1
	Stone moroko	*Pseudorasbora parva*		-	NE		1
	White-finned gudgeon	*Romanogobio vladykovi*		II	LC	DD	25
Gobiidae	Bighead goby	*Neogobius kessleri*		-	NE	DD	8
	Monkey goby	*Neogobius fluviatilis*		-	NE	DD	4
	Round goby	*Neogobius melanostomus*		-	NE	DD	12
Cobitidae	Danubian spined loach	*Cobitis elongatoides*		-			12

Observed:: reference fish assemblage	22Taxa :: 34Taxa	Taxa complete	29
Count species of reference fish assemblage	1,479	Total count	1,542

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

l Dominant species

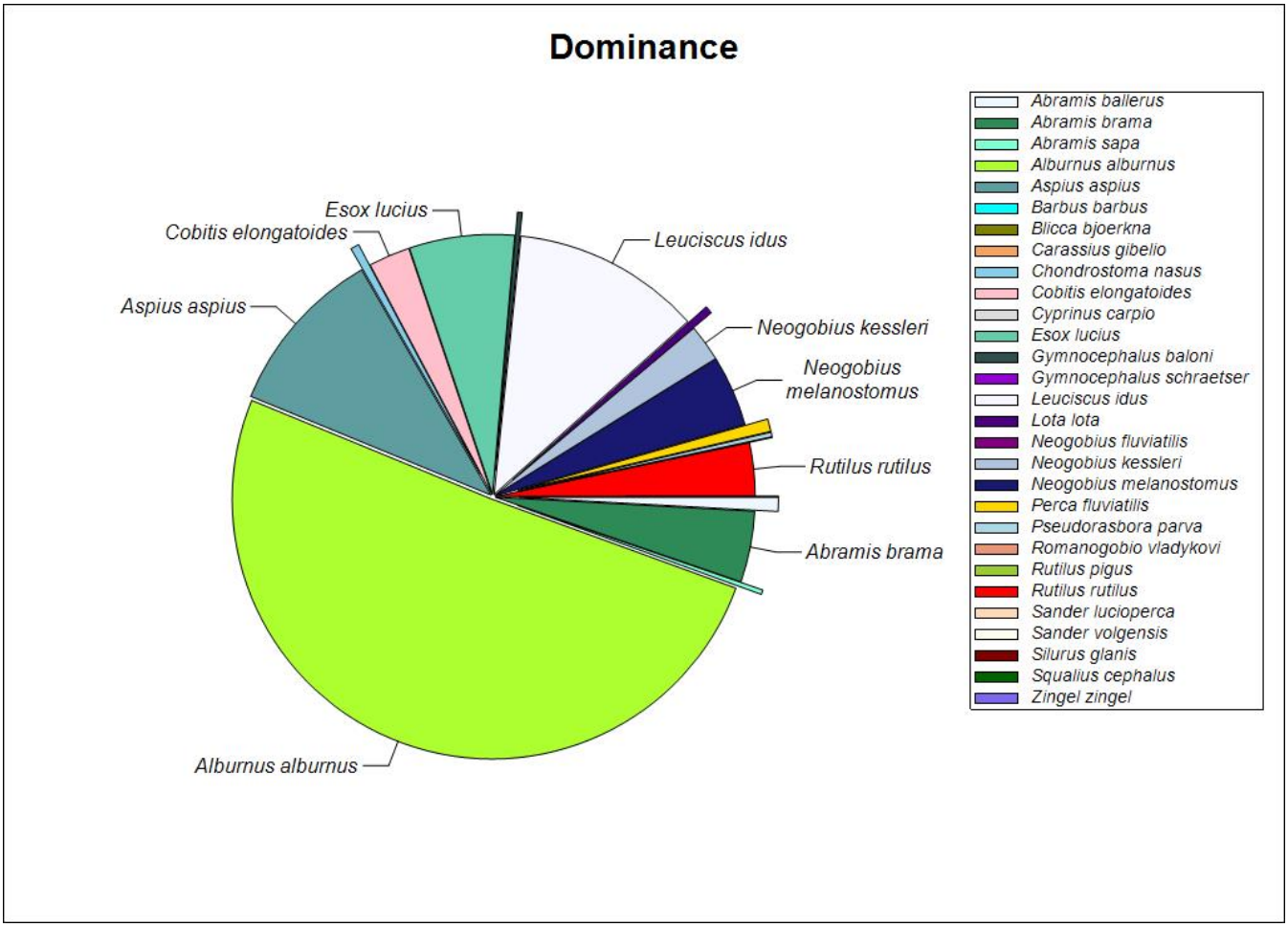
b Subdominant species
s Rare species
a! Allochthon
N! Neozoa
FFH...Fauna-Flora-Habitat-Directive (Council Directive 92/43/EEC of 21.Mai 1992)
II Species listed in Annex II of the FFH- Directive (nature reserves have to be set out for this species)
IV Species listed in Annex IV of the FFH- Directive (strict protection of animals and plants)
V Species listed in Annex V of the FFH- Directive (species whose collection and use is subject to adminitrativic 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

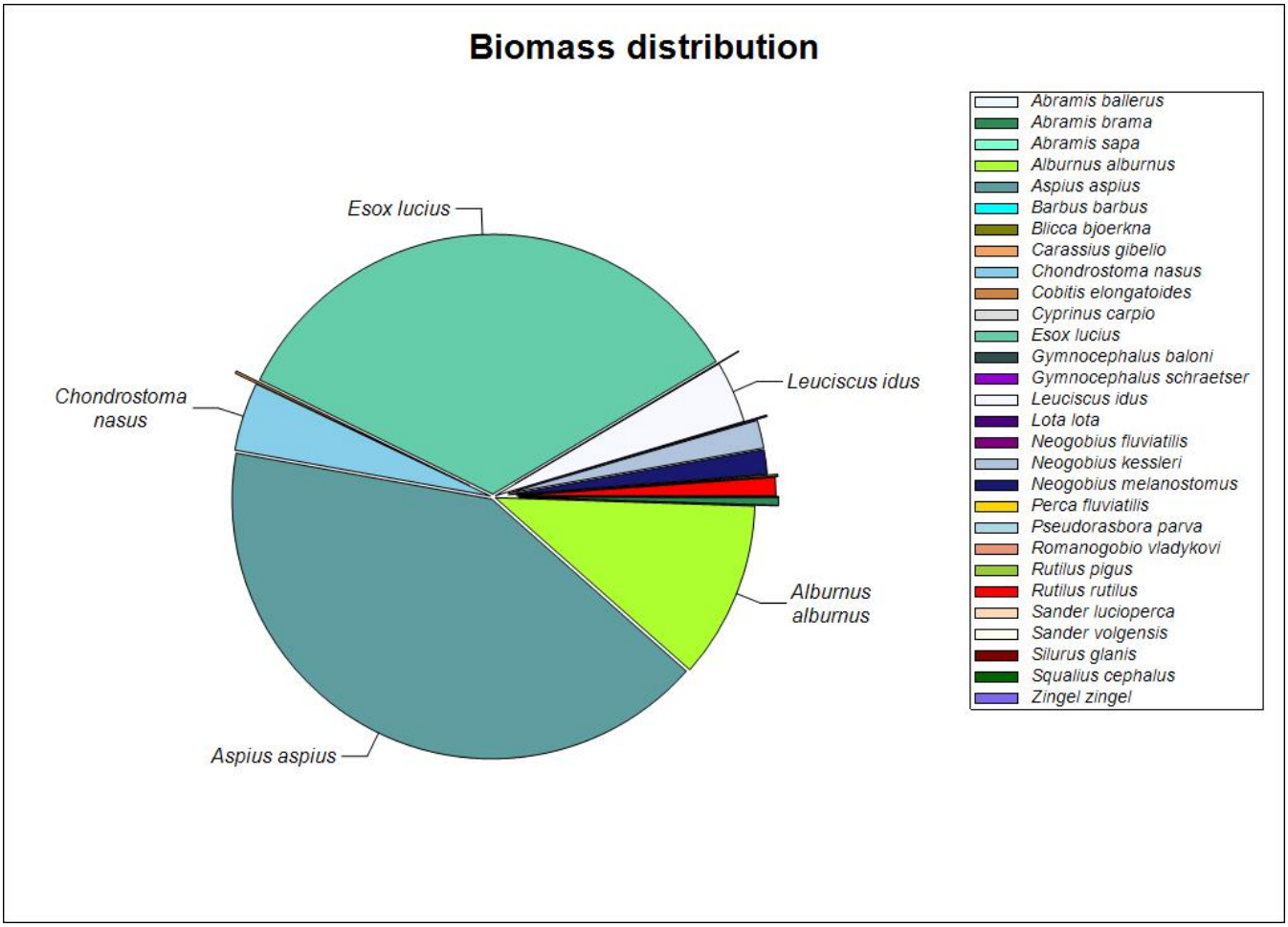
Abundance and biomass

Table 5: abundance and biomass (e-fishings)Danube, Upstream Drava, Aljmas, HR_JDS41, 8/30/2013

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
Asp	ASP-ASP	106	411.4		48.2		17.4	117.2	1	b
Barbel	BAR-BAR	1	0.0		0.0	0.0	39.0	0.0	4	b
Bighead goby	NEO-KES	8	90.0		2.0		9.1	22.6	3	
Bleak	ALB-ALB	911	1,985.1		12.9		10.1	6.5	1	l
Blue bream	ABR-BAL	30	33.7		0.0		10.1	0.5	2	l
Bream	ABR-BRA	38	173.2		0.6		11.5	3.3	2	b
Burbot	LOT-LOT	1	18.7		0.1		11.0	6.2	4	b
Carp	CYP-CAR	1	0.0		0.0	0.0	69.0	0.0	4	b
Chub	SQU-CEP	1	0.7		0.0		11.5	15.2	4	s
Danube bream	ABR-SAP	10	11.2		0.0		6.5	1.2	3	b
Danube roach	RUT-PIG	1	1.2		0.0		8.0	5.8	4	
Danube ruffe	GYM-BAL	6	11.2		0.1		6.6	4.5	3	b
Danubian spined loach	COB-ELO	12	101.2		0.2		5.6	1.9	2	
Ide	LEU-IDU	55	460.7		4.5		14.9	9.8	2	b
Monkey goby	NEO-FLU	4	0.0		0.0	0.0	6.4	0.0	4	
Nase	CHO-NAS	6	20.9		5.0		31.5	238.1	3	b
Perch	PER-FLU	5	30.7		0.1		7.5	3.9	4	b
Pike	ESO-LUC	41	256.6		39.9		29.3	155.6	3	b
Pikeperch	SAN-LUC	36	0.7		0.0		15.4	12.8	3	b
Prussian carp	CAR-GIB	3	0.0		0.0	0.0	22.3	0.0	4	l
Roach	RUT-RUT	20	128.8		1.3		13.5	10.1	2	l
Round goby	NEO-MEL	12	172.4		1.8		8.9	10.3	3	
Schraetser	GYM-SCH	31	0.0		0.0	0.0	8.8	0.0	2	b
Stone moroko	PSE-PAR	1	11.2		0.0		5.5	1.8	4	
Volga pikeperch	SAN-VOL	2	0.0		0.0	0.0	7.5	0.0	4	s
Wels catfish	SIL-GLA	2	0.0		0.0	0.0	26.5	0.0	4	b
White bream	ABR-BJO	172	0.0		0.0	0.0	11.0	0.0	1	l
White-finned gudgeon	ROM-VLA	25	0.0		0.0	0.0	4.2	0.0	3	
Zingel	ZIN-ZIN	1	0.0		0.0	0.0	19.0	0.0	4	s

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
22 species of 34	Total	1,542	3,919.6		116.7					





Pic. 4: Dominance und Biomass distribution

Shannon-Index: 1.688

Equitability: 0.501

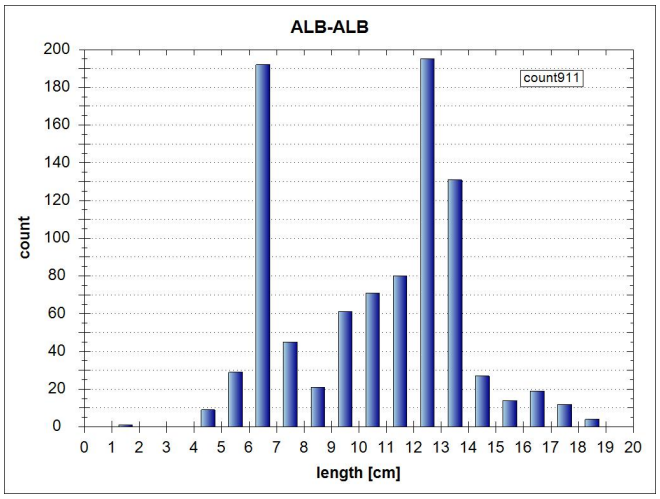
Biometrics and catch rate

Table 6: biometrics of each species and catch specific parameters

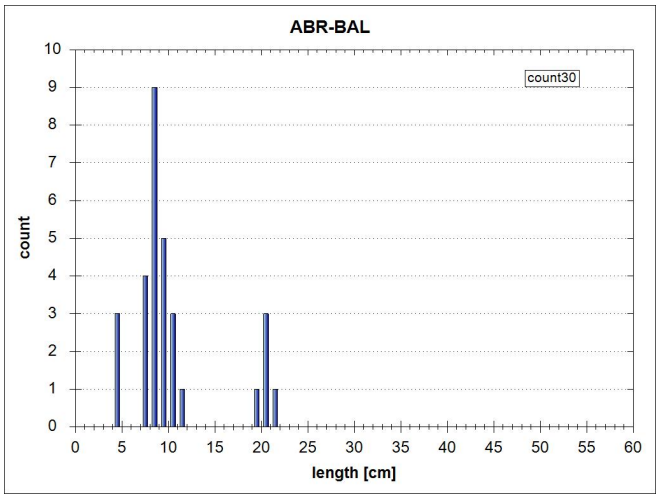
	Lt [cm]				Statist.	Catch-	Catch-effectivity		
Fish species	Min		Max	n	Method	Probability [%]	Min	MW	Max
Asp	7.0	17.4	57.0	106			0.20	0.39	0.70
Barbel	39.0	39.0	39.0	1			0.40	0.40	0.40
Bighead goby	5.0	9.1	13.0	8			0.30	0.38	0.50
Bleak	1.0	10.1	18.0	911			0.05	0.31	0.50
Blue bream	4.0	10.1	21.1	30			0.20	0.48	0.70
Bream	3.0	11.5	42.0	38			0.10	0.46	0.70
Burbot	11.0	11.0	11.0	1			0.30	0.30	0.30
Carp	69.0	69.0	69.0	1			0.70	0.70	0.70
Chub	11.5	11.5	11.5	1			0.50	0.50	0.50
Danube bream	4.1	6.5	9.0	10			0.10	0.62	0.70
Danube roach	8.0	8.0	8.0	1			0.30	0.30	0.30
Danube ruffe	5.5	6.6	7.0	6			0.30	0.33	0.50
Danubian spined loach	4.5	5.6	10.5	12			0.30	0.45	0.50
Ide	4.0	14.9	50.0	55			0.20	0.44	0.50
Monkey goby	4.0	6.4	8.2	4			0.70	0.70	0.70
Nase	17.0	31.5	39.5	6			0.30	0.47	0.50

	Lt [cm]				Statist.	Catch-	Catch-effectivity		
Fish species	Min		Max	n	Method	Probability [%]	Min	MW	Max
Perch	6.0	7.5	8.5	5			0.30	0.38	0.50
Pike	20.0	29.3	43.0	41			0.10	0.31	0.70
Pikeperch	10.0	15.4	55.0	36			0.20	0.43	1.00
Prussian carp	20.5	22.3	24.5	3			0.30	0.40	0.50
Roach	5.0	13.5	30.4	20			0.30	0.49	0.70
Round goby	7.0	8.9	10.0	12			0.30	0.33	0.50
Schraetser	6.6	8.8	13.5	31			0.20	0.67	0.70
Stone moroko	5.5	5.5	5.5	1			0.50	0.50	0.50
Volga pikeperch	6.6	7.5	8.4	2			0.70	0.70	0.70
Wels catfish	22.0	26.5	31.0	2			0.40	0.45	0.50
White bream	5.0	11.0	30.0	172			0.10	0.35	0.70
White-finned gudgeon	1.5	4.2	7.3	25			0.70	0.70	0.70
Zingel	19.0	19.0	19.0	1			0.50	0.50	0.50
29 species			Sum	1,542					

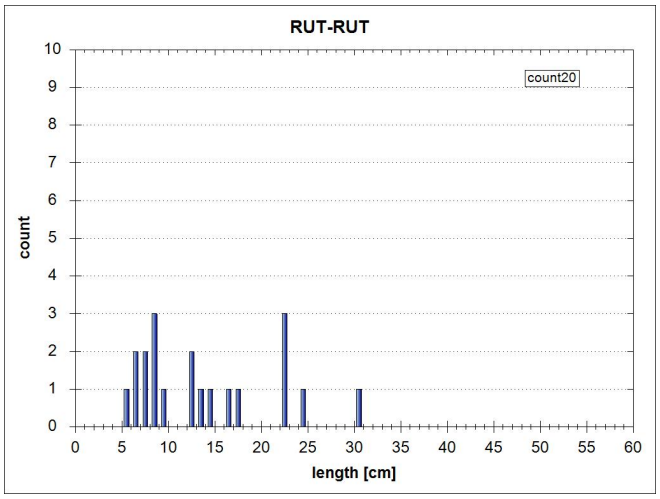
Population structure of dominant species and subdominante species (total catch)



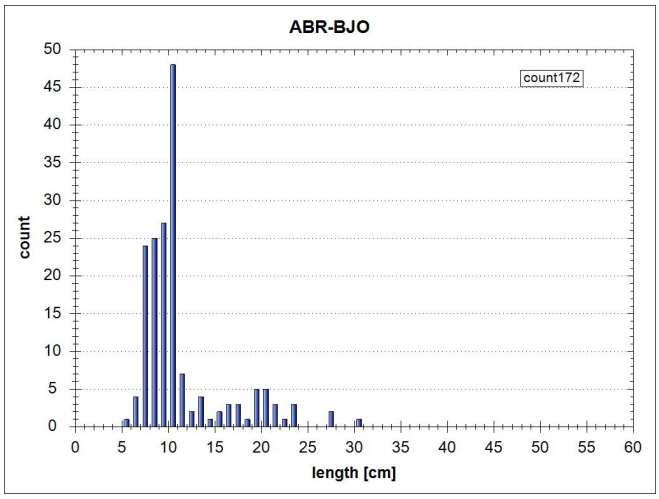
Bleak (*Alburnus alburnus*), **1**



Blue bream (*Abramis ballerus*), **2**

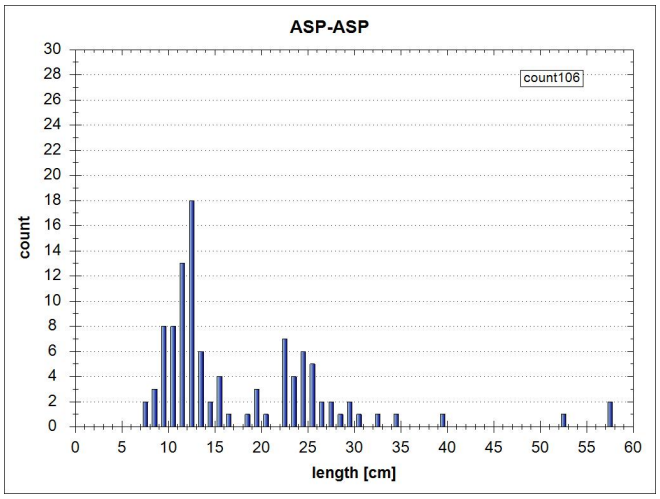


Roach (*Rutilus rutilus*), **2**

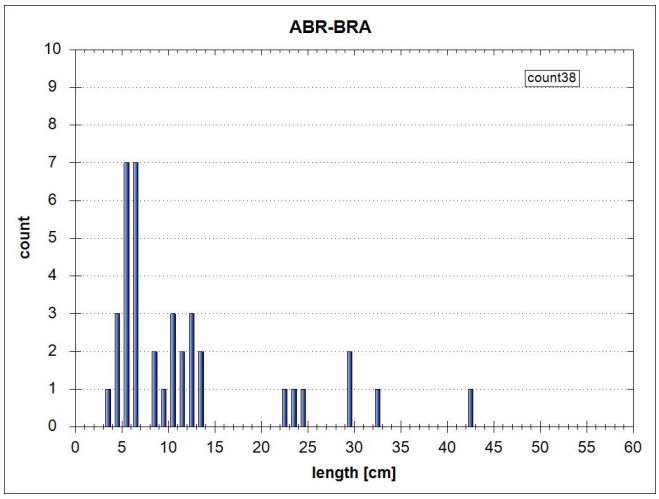


White bream (*Blicca bjoerkna*), **1**

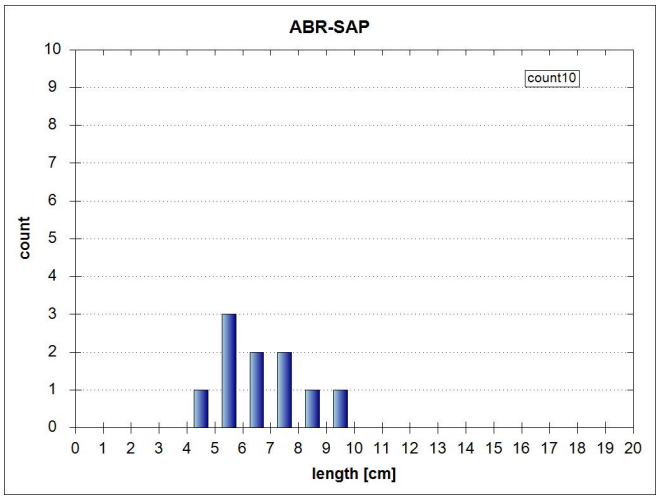
Pic. 5: Length-frequency diagram of dominant species (n>3), Aug. 2013



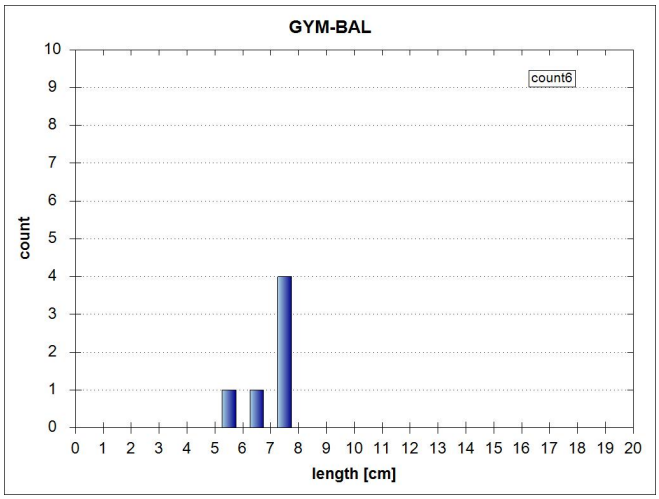
Asp (*Aspius aspius*), **1**



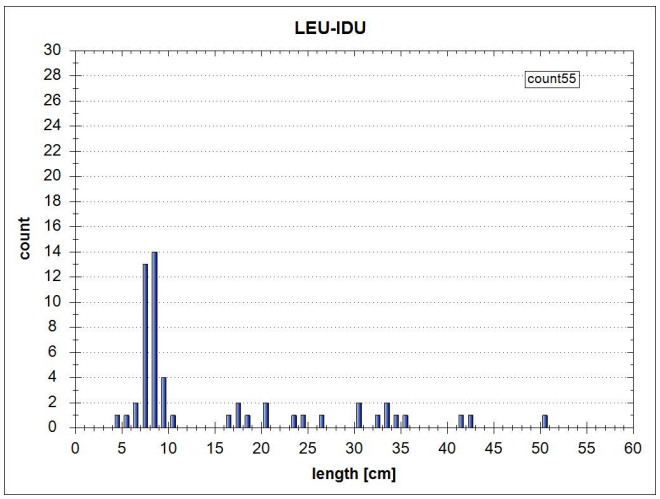
Bream (*Abramis brama*), **2**



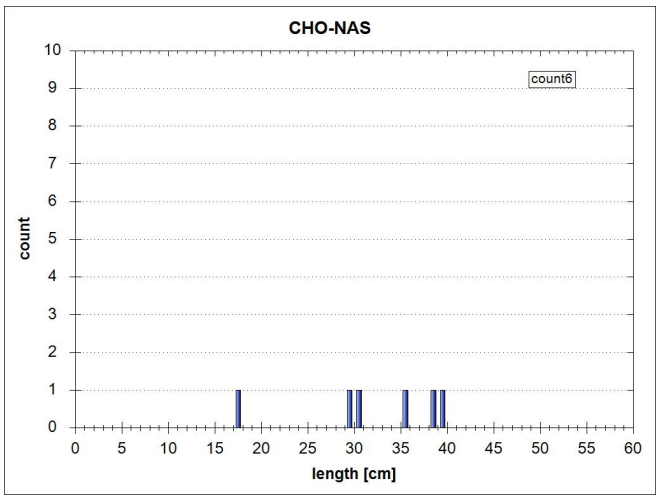
Danube bream (*Abramis sapa*), **3**



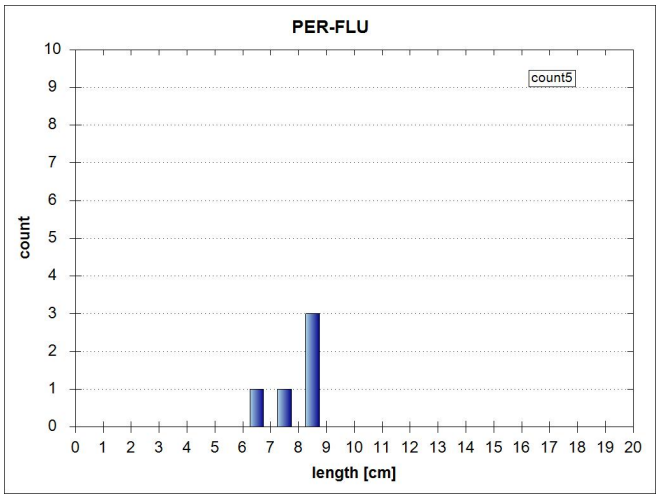
Danube ruffe (*Gymnocephalus baloni*), **3**



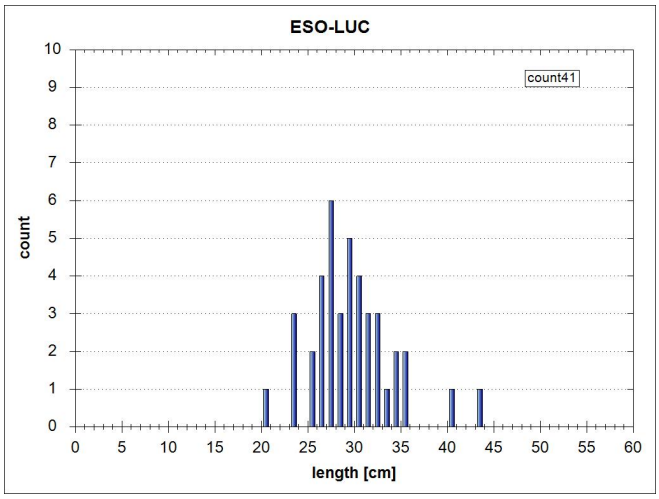
Ide (*Leuciscus idus*), **2**



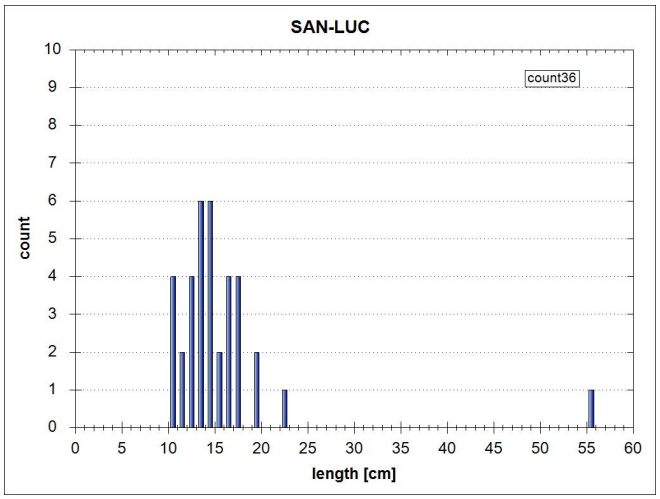
Nase (*Chondrostoma nasus*), **3**



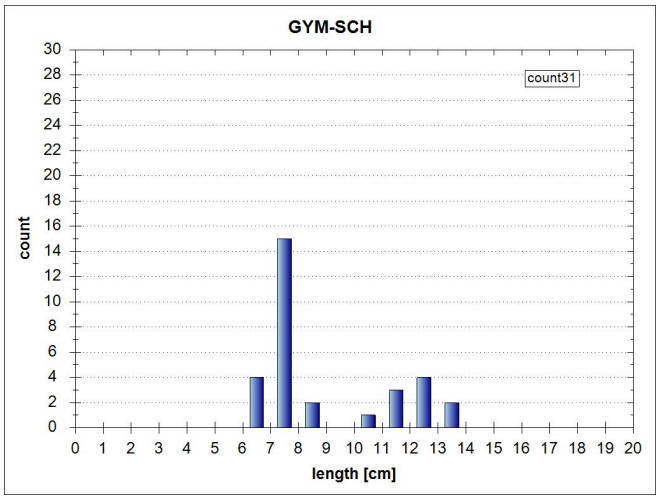
Perch (*Perca fluviatilis*), **4**



Pike (*Esox lucius*), **3**

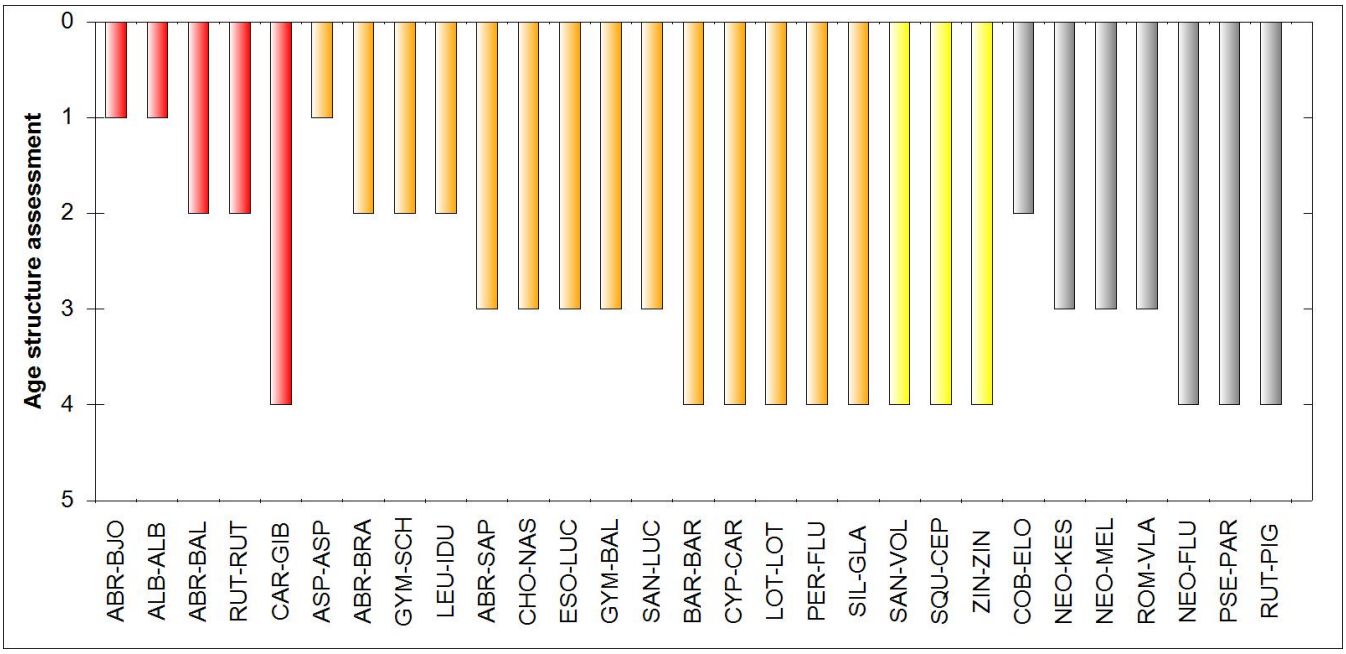


Pikeperch (*Sander lucioperca*), **3**



Schraetser (*Gymnocephalus schraetser*), **2**

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, Upstream Drava, Aljmas, HR_JDS41, 8/30/2013

Rating					
Stock data	Abundance Ind/ha	Biomass kg/ha			ko-criterion biomass
	3,543.9	112.7			OK

1. Species	Reference fish assemblage	actual (current)	Ratio/Deviation	Partial rating	
Species					
Dominant species	7	5	71%	3.0	
Subdominant species	19	14	74%	2.0	
Rare species	8	3	38%	2.0	
				2.3	
Ecological guilds					
Flow	5	4	1	2.0	
Reproduction	6	4	2	3.0	
				2.5	
Species diversity & guilds overall					**2.6**

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	5		2.9	
Subdominant species	19	14		3.5	
					3.1

Fishindex Austria without active ko-criterion				2.56

Biological quality element fish	FIA 2.56	Class 3	Moderate

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;

Send