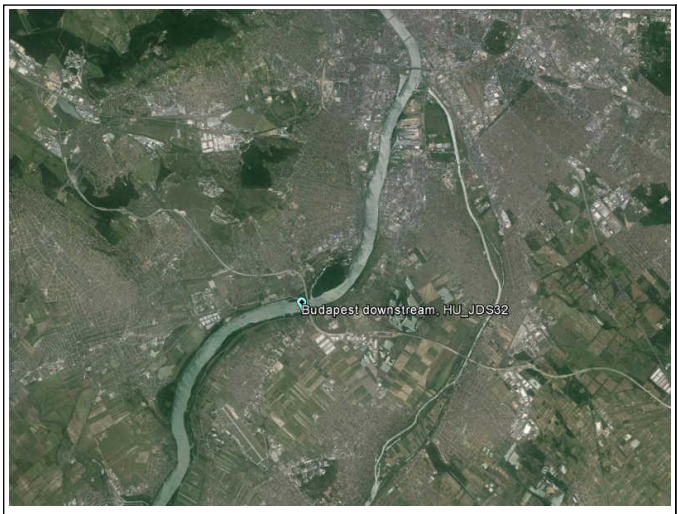
Danube

Budapest downstream, HU_JDS32 (HU_JDS32), 27.August 2013 FDA_ID 234



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

Pic. 2: Monitoring site Budapest downstream, HU_JDS32

Description of monitoring site

- no data -

Assessment

Estimated assessment of the ecological status class (FÖZ)

Biological quality element fish	None

Ecological status class, current survey, 27.August 2013

Biological quality element fish	FIA 2.33	Class 2	Good

Former classifications

None				
None				
None				

Information about and sampling conditions and location

Table 1: Key data and information on sampling, monitoring siteBudapest downstream, HU_JDS32

Watercourse name	**Danube**	Federal state	**not availabvle**
Monitoring site	**Budapest downstream, HU_JDS32**	District	
Monitoring site number	**HU_JDS32**	Community	
Turnus number		Longitude (WGS 84, decimal) O	**19.01025**
sampling number		Latitude (WGS 84, decimal) N	**47.38863**
Survey-ID (FDA)	**234**	Route-ID	
Date	**8/27/2013**	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	**09**
Fish bioregion	**Hungarian Danube Bend (1789,5-1497) (5)**	Huet-zonation	**bream zone**
Biocenotic Region	**Epipotamon large**	Adapt. Reference	**115**
River km from	**1,632.0**	Altidude [m.a.s]	**95**
River km to	**1,627.0**	Ø catchment basin [km²]	**188,000**
Section length [m]	**5,000**	Catchment-class	**more than 10.000km²**
Ø channel width [m]	**500**	Slope [‰]	**0.05**
Original stream character	**lowland stream -river**	Discharge regime	
Actual site character			
Actual impact		Reference watergauge (name, number)	
Flow [semiquant.]		Distance from source [km]	**1,215.0**
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]	**500**	Flow condition	
pH-value		Visible depth	
SBV		Fishing conditions	
Water temperature [°C] (F117)	**21**	Average annual air temperature [°C]	**11.2**
Conductance, 25°C [µS/cm] (F118)	**382**		
Methods used and effort			
Strip-fishing, day		Number of runs	**1**
Fished length [m]	**3,470**	E-devices output [kW]	**11**
Fished area [m²]	**9,780**	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	**12,165**		

Comments on survey:

- no data -

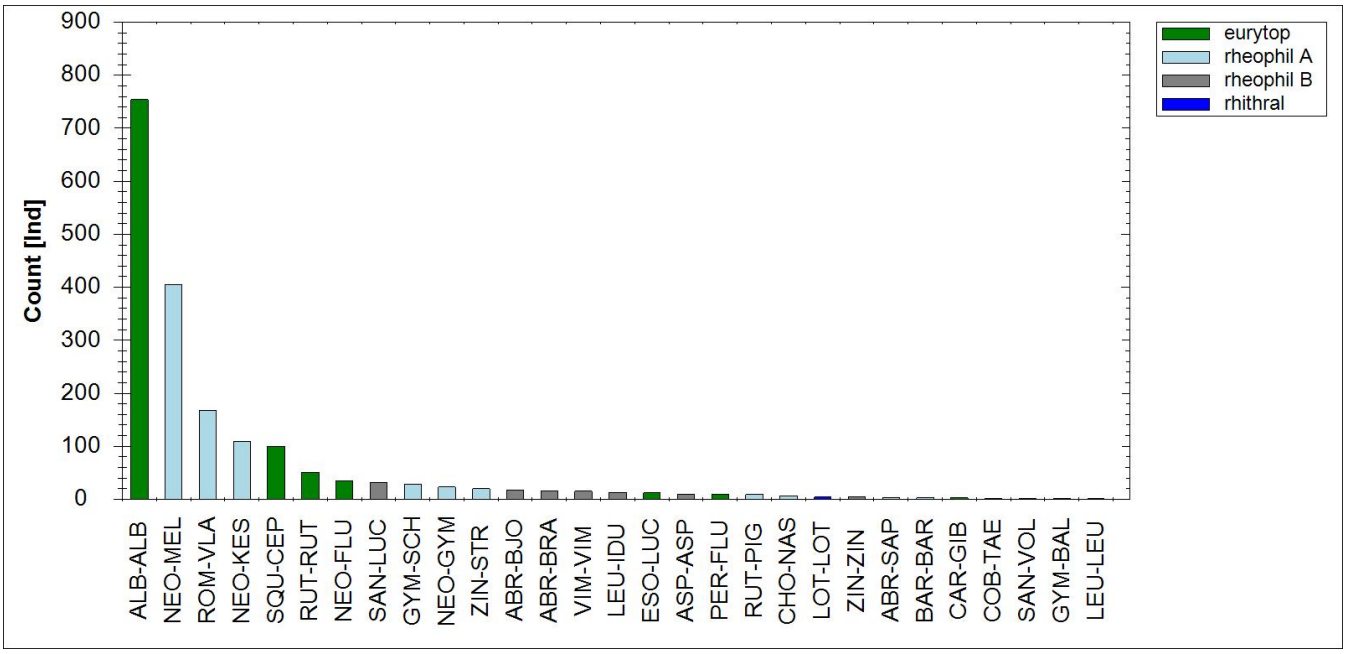
Table 2: Sampling effort at the monitoring site Budapest downstream, HU_JDS32, August 2013

Habitat	Str. no	DG.	Length [m]	Width [m]	UE	Method
rip-rap	3	1	400	3		E-fishing day boat
rip-rap	5	1	120	1.5		E-fishing day boat
rip-rap	15	1	110	1.5		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
rock	26	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
undet. middle of the river	21	1	500	2		electric beam trawl
other natural bank	1	1	400	3		E-fishing day boat
other natural bank	2	1	400	3		E-fishing day boat
other natural bank	4	1	360	3		E-fishing day boat
other natural bank	6	1	340	3		E-fishing day boat
other natural bank	7	1	300	1.5		E-fishing day boat
other natural bank	8	1	350	3		E-fishing day boat
other natural bank	9	1	400	3		E-fishing day boat
other natural bank	10	1	400	3		E-fishing day boat
other natural bank	11	1	360	3		E-fishing night
other natural bank	12	1	340	3		E-fishing night
other natural bank	13	1	400	3		E-fishing night
other natural bank	14	1	400	3		E-fishing night

Table 3: Habitat weighting used at the monitoring site Budapest downstream, HU_JDS32

Habitat	%
other natural bank	80
rip-rap	20
rock	0
undet. middle of the river	0

Catch result, fish assemblage and threatening status



Pic. 3: Species ranking diagramm of catch resultsDanube, Budapest downstream, HU_JDS32

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	
Salmonidae	Danube salmon	*Hucho hucho*	s	II; V	EN	EN	
Cyprinidae	Asp	*Aspius aspius*	b	II	EN	DD	10
	Barbel	*Barbus barbus*	l	V	NT	LC	3
	Bitterling	*Rhodeus amarus*	b	II	VU	LC	
	Black Sea roach	*Rutilus meidingeri*	s	II; V	EN	EN	
	Bleak	*Alburnus alburnus*	l	-	LC	LC	754
	Blue bream	*Abramis ballerus*	b	-	EN		
	Bream	*Abramis brama*	l	-	LC		16
	Carp	*Cyprinus carpio*	b	-	EN	DD	
	Chub	*Squalius cephalus*	s	-	LC	LC	100
	Crucian carp	*Carassius carassius*	b	-	EN	LC	
	Dace	*Leuciscus leuciscus*	b	-	NT	LC	1
	Danube barbel	*Barbus balcanicus*	s	II	CR	NT	
	Danube roach	*Rutilus pigus*	b	II; V	EN	DD	9
	Danubian gudgeon	*Romanogobio uranoscopus*	s	II	CR	DD	
	Gudgeon	*Gobio gobio*	b	-	LC	LC	
	Ide	*Leuciscus idus*	l	-	EN	LC	13
	Kessler's gudgeon	*Romanogobio kesslerii*	s	II	EN	DD	
	Minnow	*Phoxinus phoxinus*	s	-	NT	LC	
	Nase	*Chondrostoma nasus*	l	-	NT	LC	7
	Prussian carp	*Carassius gibelio*	s	-	LC		3
	Roach	*Rutilus rutilus*	l	-	LC	LC	51
	Rudd	*Scardinius erythrophthalmus*	s	-	LC	LC	
	Sabre carp	*Pelecus cultratus*	s	II; V	NT	DD	
	Spirlin	*Alburnoides bipunctatus*	s	-	LC	LC	
	Sunbleak	*Leucaspius delineatus*	s	-	EN	LC	
	Tench	*Tinca tinca*	s	-	VU	LC	
	Vimba bream	*Vimba vimba*	b	-	VU	LC	15
	White bream	*Blicca bjoerkna*	l	-	LC	LC	17
	White-finned gudgeon	*Romanogobio vladykovi*	b	II	LC	DD	167
Esocidae	Pike	*Esox lucius*	b	-	NT		12
Gadidae	Burbot	*Lota lota*	b	-	VU		4
Percidae	Danube ruffe	*Gymnocephalus baloni*	b	II; IV	VU	DD	1
	Perch	*Perca fluviatilis*	l	-	LC	LC	9
	Pikeperch	*Sander lucioperca*	l	-	NT	LC	32
	Ruffe	*Gymnocephalus cernuus*	b	-	LC	LC	
	Schraetser	*Gymnocephalus schraetser*	b	II; V	VU	VU	28
	Streber	*Zingel streber*	b	II	EN	VU	20
	Volga pikeperch	*Sander volgensis*	s	-	EN	DD	2
	Zingel	*Zingel zingel*	b	II; V	VU	VU	4
Siluridae	Wels catfish	*Silurus glanis*	b	-	VU	LC	
Cottidae	Bullhead	*Cottus gobio*	s	II	NT	LC	
Cobitidae	Balcan loach	*Sabanejewia balcanica*	s	II	EN	DD	
	Danubian spined loach	*Cobitis elongatoides*	b	-			

Family	English name	Scient. name of species	Reference fish assemblage	FHH	Red List	IUCN	Count
	Weatherfish	*Misgurnus fossilis*	s	II	CR	NT	
Balitoridae	Danube bream	*Abramis sapa*	b	-	EN		3
	Stone loach	*Barbatula barbatula*	s	-	LC	LC	
Acipenseridae	Danube sturgeon	*Acipenser gueldenstaedtii*	s	V	RE	EN	
	Fringebarbel sturgeon	*Acipenser nudiventris*	s	V	RE	EN	
	Giant sturgeon	*Huso huso*	s	V	RE	EN	
	Starry sturgeon	*Acipenser stellatus*	s	V	RE	EN	
	Sterlet	*Acipenser ruthenus*	b	V	CR	VU	
Clupeidae	European mud-minnow	*Umbra krameri*	s	II	CR	VU	
	Pontic shad	*Alosa immaculata*	s	-			
Gobiidae	Bighead goby	*Neogobius kessleri*		-	NE	DD	109
	Monkey goby	*Neogobius fluviatilis*		-	NE	DD	34
	Racer goby	*Neogobius gymnotrachelus*		-	NE	DD	23
	Round goby	*Neogobius melanostomus*		-	NE	DD	405
Cobitidae	Spined loach	*Cobitis taenia*		II	VU	LC	2

Observed:: reference fish assemblage	24Taxa :: 55Taxa	Taxa complete	29
Count species of reference fish assemblage	1,281	Total count	1,854

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)

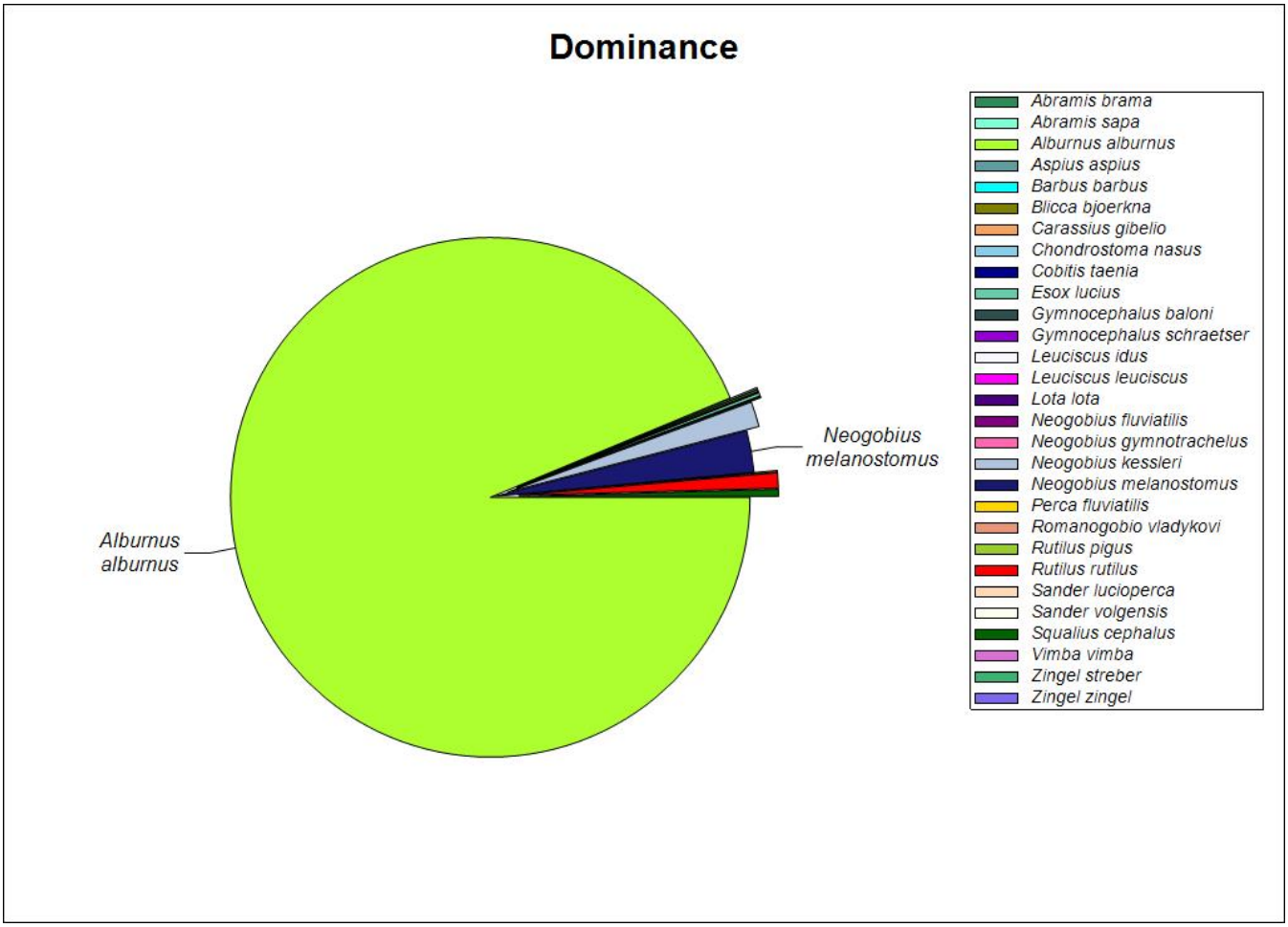
II	Species listed in Annex II of the FFH- Directive (nature reserves have to be set out for this species)
IV	Species listed in Annex IV of the FFH- Directive (strict protection of animals and plants)
V	Species listed in Annex V of the FFH- Directive (species whose collection and use is subject to adminitrativic 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

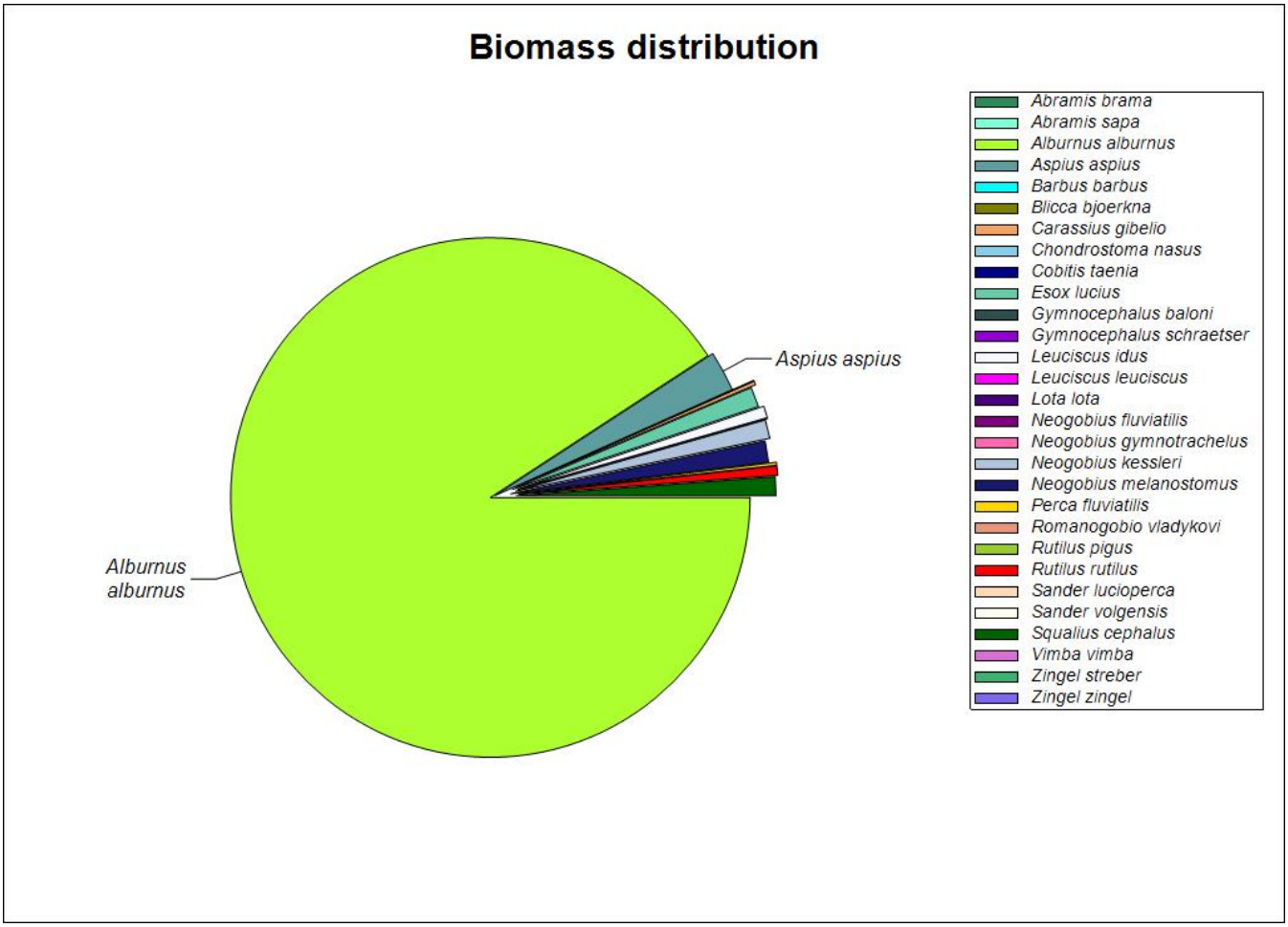
Abundance and biomass

Table 5: abundance and biomass (e-fishings)Danube, Budapest downstream, HU_JDS32, 8/27/2013

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	10	11.4		3.2		27.5	283.3	3	b
Barbel	BAR-BAR	3	0.0		0.0	0.0	42.3	0.0	4	l
Bighead goby	NEO-KES	109	147.7		1.5		8.1	10.0	1	
Bleak	ALB-ALB	754	8,823.5		116.6		10.2	13.2	1	l
Bream	ABR-BRA	16	0.0		0.0	0.0	17.5	0.0	3	l

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
Burbot	LOT-LOT	4	0.0		0.0	0.0	16.8	0.0	3	b
Chub	SQU-CEP	100	41.2		1.5		15.5	36.5	3	s
Dace	LEU-LEU	1	0.0		0.0	0.0	27.0	0.0	4	b
Danube bream	ABR-SAP	3	0.0		0.0	0.0	10.2	0.0	4	b
Danube roach	RUT-PIG	9	0.0		0.0	0.0	15.7	0.0	3	b
Danube ruffe	GYM-BAL	1	0.0		0.0	0.0	7.0	0.0	4	b
Ide	LEU-IDU	13	6.1		1.0		27.5	155.2	3	l
Monkey goby	NEO-FLU	34	0.0		0.0	0.0	9.3	0.0	3	
Nase	CHO-NAS	7	0.0		0.0	0.0	20.4	0.0	3	l
Perch	PER-FLU	9	8.6		0.2		13.4	28.1	3	l
Pike	ESO-LUC	12	19.3		1.6		23.8	82.1	3	b
Pikeperch	SAN-LUC	32	0.0		0.0	0.0	14.9	0.0	3	l
Prussian carp	CAR-GIB	3	5.7		0.3		14.7	52.8	4	s
Racer goby	NEO-GYM	23	3.8		0.0		6.0	4.9	2	
Roach	RUT-RUT	51	88.9		0.8		12.3	8.4	1	l
Round goby	NEO-MEL	405	243.8		1.7		6.1	7.0	1	
Schraetser	GYM-SCH	28	0.0		0.0	0.0	10.9	0.0	1	b
Spined loach	COB-TAE	2	0.0		0.0	0.0	9.5	0.0	4	
Streber	ZIN-STR	20	0.0		0.0	0.0	7.8	0.0	2	b
Vimba bream	VIM-VIM	15	0.0		0.0	0.0	11.4	0.0	3	b
Volga pikeperch	SAN-VOL	2	0.0		0.0	0.0	8.0	0.0	4	s
White bream	ABR-BJO	17	12.1		0.1		11.8	4.8	3	l
White-finned gudgeon	ROM-VLA	167	0.0		0.0	0.0	10.6	0.0	2	b
Zingel	ZIN-ZIN	4	0.0		0.0	0.0	24.0	0.0	4	b
24 species of 55	Total	1,854	9,412.1		128.4					





Pic. 4: Dominance und Biomass distribution

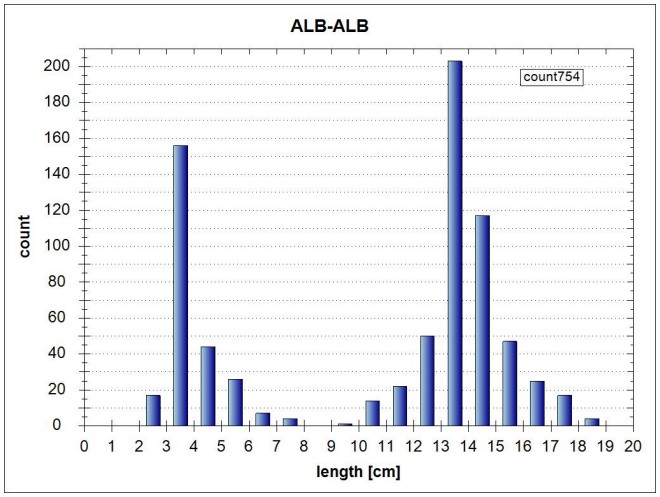
Shannon-Index: 2.020
Equitability: 0.600

Biometrics and catch rate

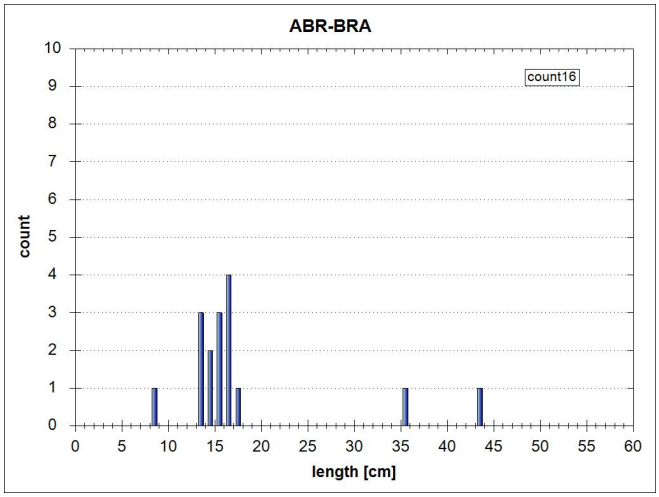
Table 6: biometrics of each species and catch specific parameters

	Lt [cm]				Statist.	Catch-	Catch-effectivity		
Fish species	Min		Max	n	Method	Probability [%]	Min	MW	Max
Asp	3.5	27.5	52.0	10			0.50	0.69	1.00
Barbel	36.0	42.3	52.0	3			0.30	0.57	0.70
Bighead goby	3.0	8.1	13.0	109			0.30	0.46	0.70
Bleak	2.0	10.2	18.0	754			0.05	0.12	0.70
Bream	8.0	17.5	43.0	16			0.50	0.52	0.70
Burbot	11.0	16.8	22.0	4			0.50	0.50	0.50
Chub	2.2	15.5	31.0	100			0.30	0.53	0.80
Dace	27.0	27.0	27.0	1			1.00	1.00	1.00
Danube bream	7.5	10.2	12.0	3			0.30	0.30	0.30
Danube roach	6.9	15.7	27.0	9			0.50	0.50	0.50
Danube ruffe	7.0	7.0	7.0	1			0.30	0.30	0.30
Ide	9.7	27.5	47.0	13			0.30	0.58	0.80
Monkey goby	3.9	9.3	12.0	34			0.30	0.32	0.50
Nase	6.5	20.4	42.0	7			0.50	0.56	0.70
Perch	6.5	13.4	19.0	9			0.30	0.43	0.50
Pike	13.0	23.8	40.0	12			0.30	0.43	0.50
Pikeperch	10.0	14.9	29.0	32			0.30	0.52	0.80
Prussian carp	14.0	14.7	15.0	3			0.50	0.50	0.50
Racer goby	2.5	6.0	10.0	23			0.50	0.55	0.70
Roach	2.7	12.3	20.0	51			0.30	0.43	0.50
Round goby	2.1	6.1	12.5	405			0.30	0.57	0.70
Schraetser	7.0	10.9	18.5	28			0.30	0.51	0.70
Spined loach	9.0	9.5	10.0	2			0.50	0.50	0.50
Streber	5.5	7.8	15.0	20			0.70	0.70	0.70
Vimba bream	7.0	11.4	20.0	15			0.30	0.38	0.50
Volga pikeperch	7.5	8.0	8.5	2			0.50	0.50	0.50
White bream	5.0	11.8	27.0	17			0.20	0.41	0.70
White-finned gudgeon	2.0	10.6	15.0	167			0.30	0.42	0.70
Zingel	20.0	24.0	28.5	4			0.50	0.55	0.70
29 species			Sum	1,854					

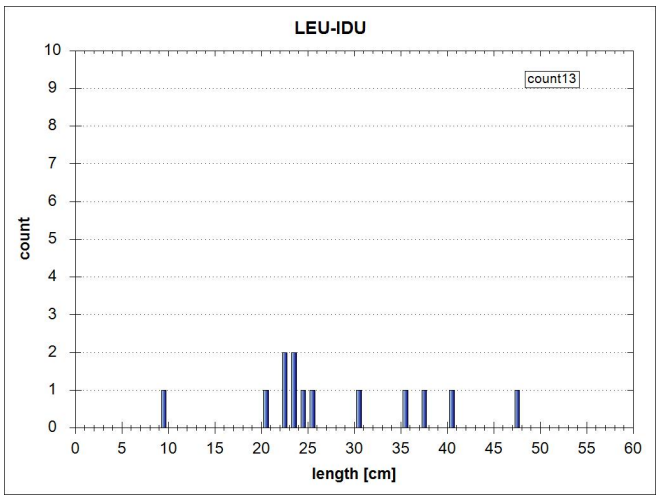
Population structure of dominant species and subdominante species (total catch)



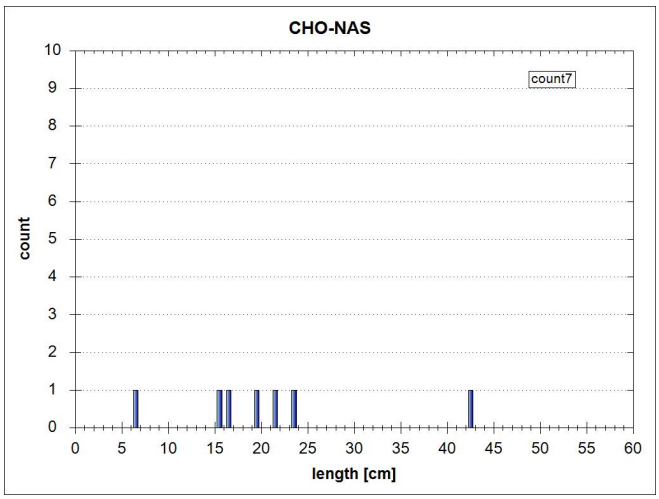
Bleak (*Alburnus alburnus*), **1**



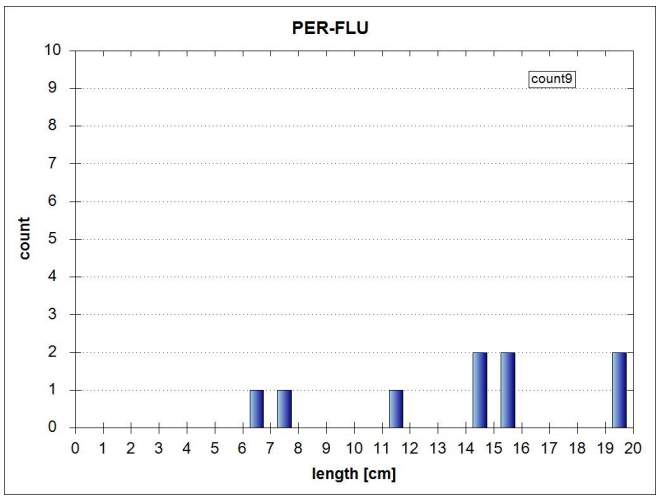
Bream (*Abramis brama*), **3**



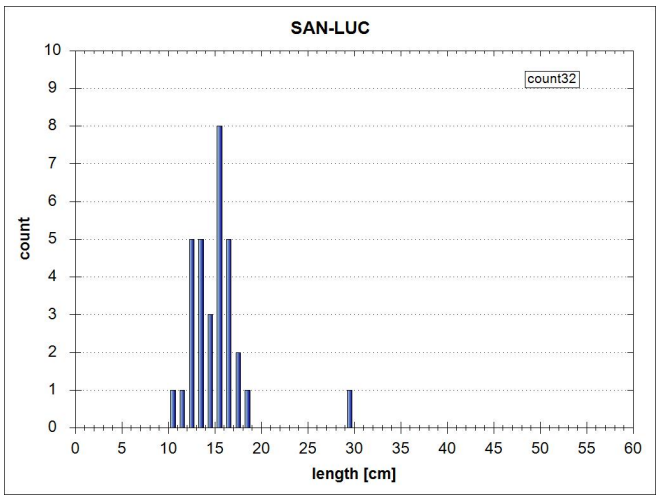
Ide (*Leuciscus idus*), **3**



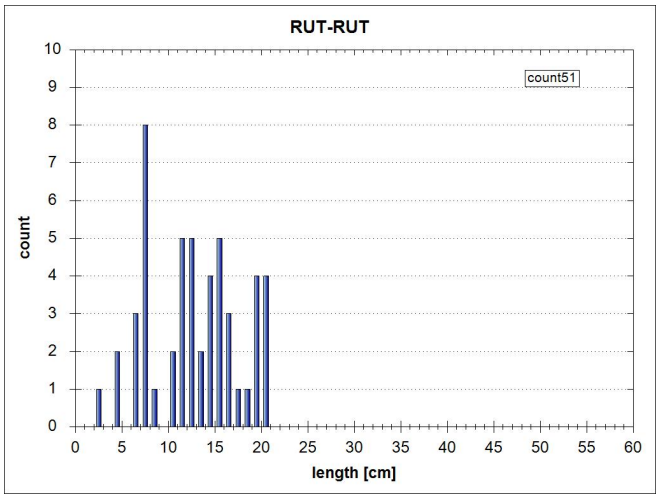
Nase (*Chondrostoma nasus*), **3**



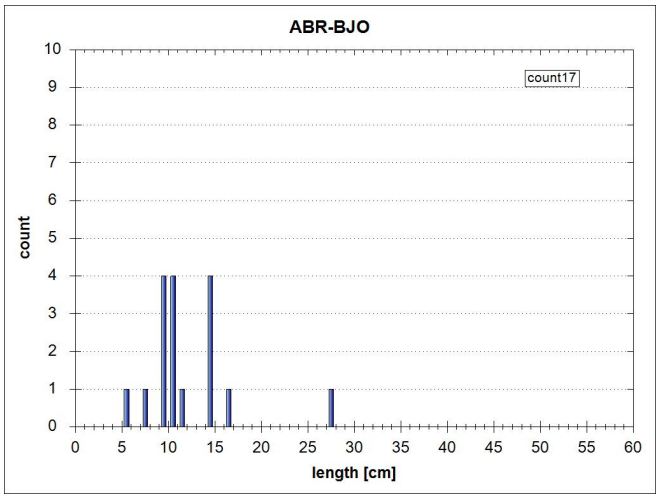
Perch (*Perca fluviatilis*), **3**



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

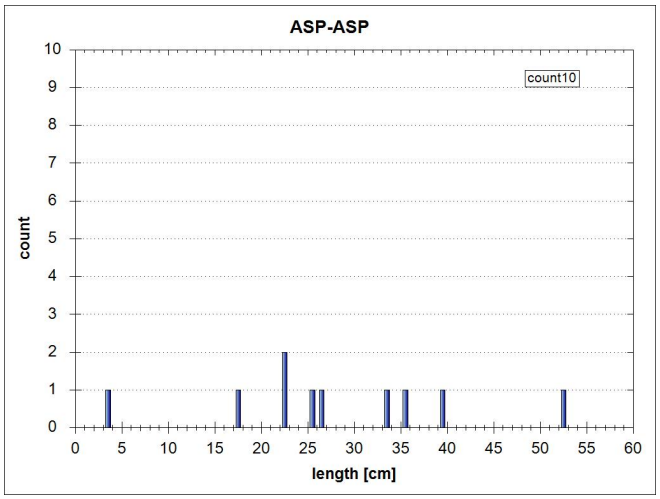


Roach (*Rutilus rutilus*), **1**

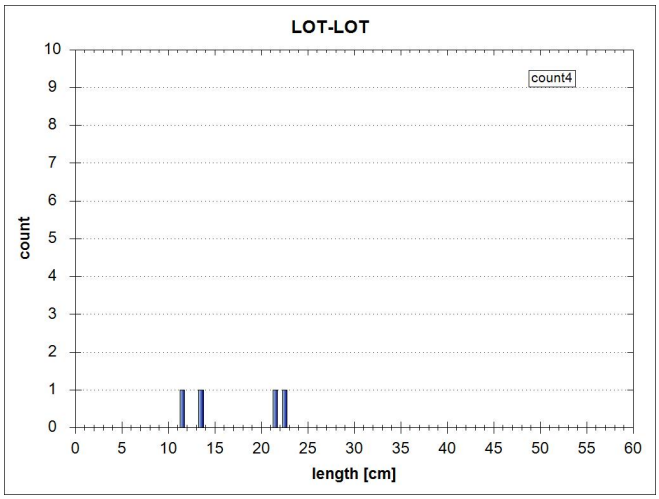


White bream (*Blicca bjoerkna*), **3**

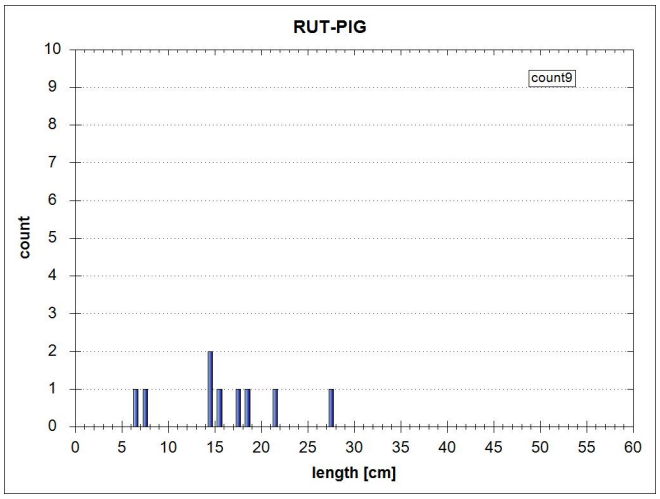
Pic. 5: Length-frequency diagram of dominant species (n>3), Aug. 2013



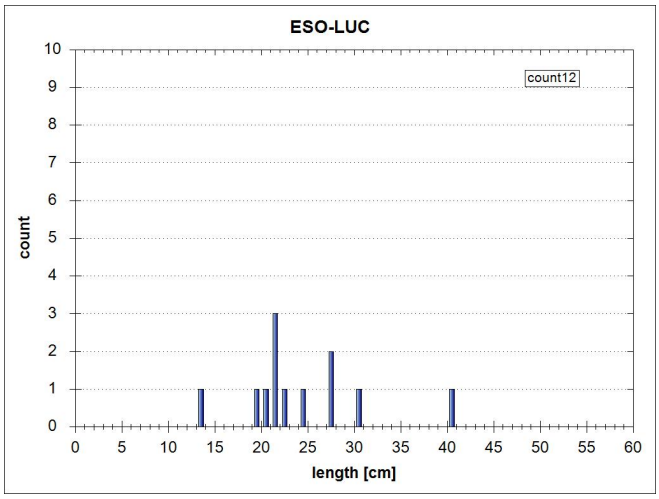
Asp (*Aspius aspius*), **3**



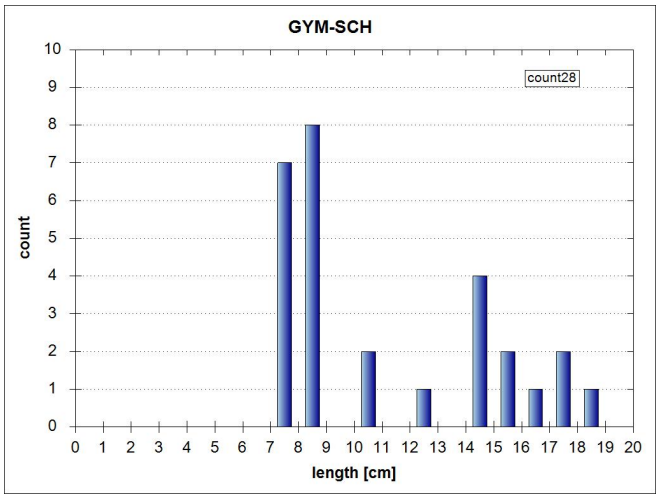
Burbot (*Lota lota*), **3**



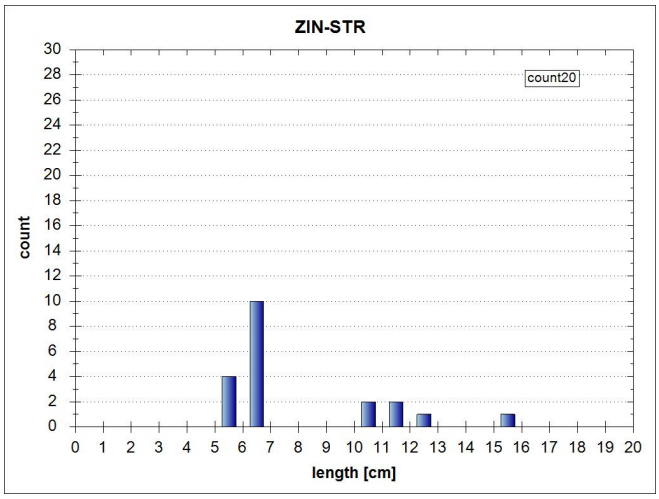
Danube roach (*Rutilus pigus*), **3**



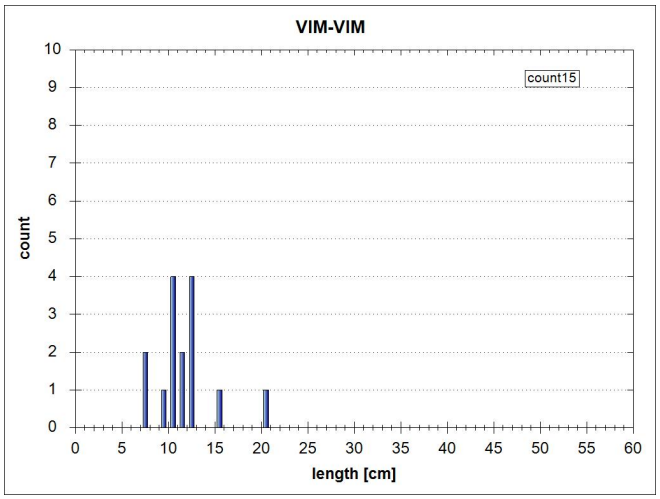
Pike (*Esox lucius*), **3**



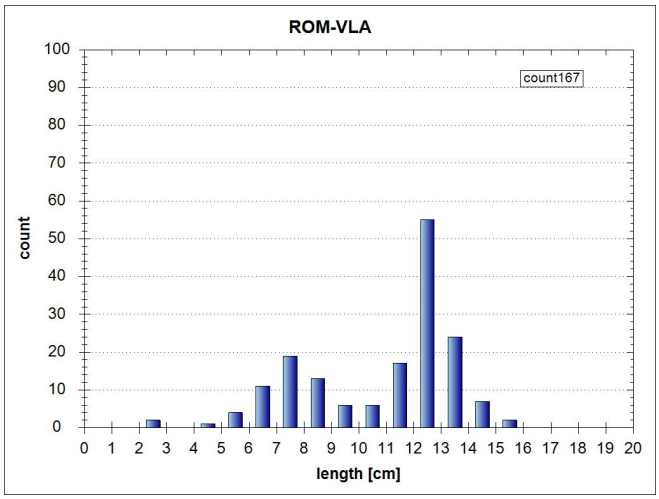
Schraetser (*Gymnocephalus schraetser*), **1**



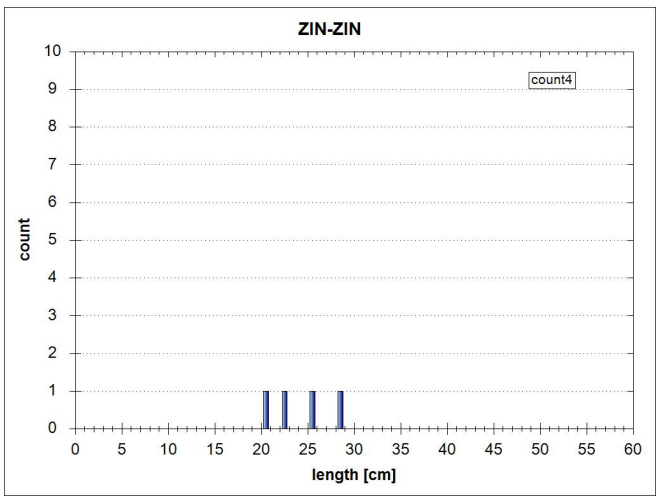
Streber (*Zingel streber*), **2**



Vimba bream (*Vimba vimba*), **3**

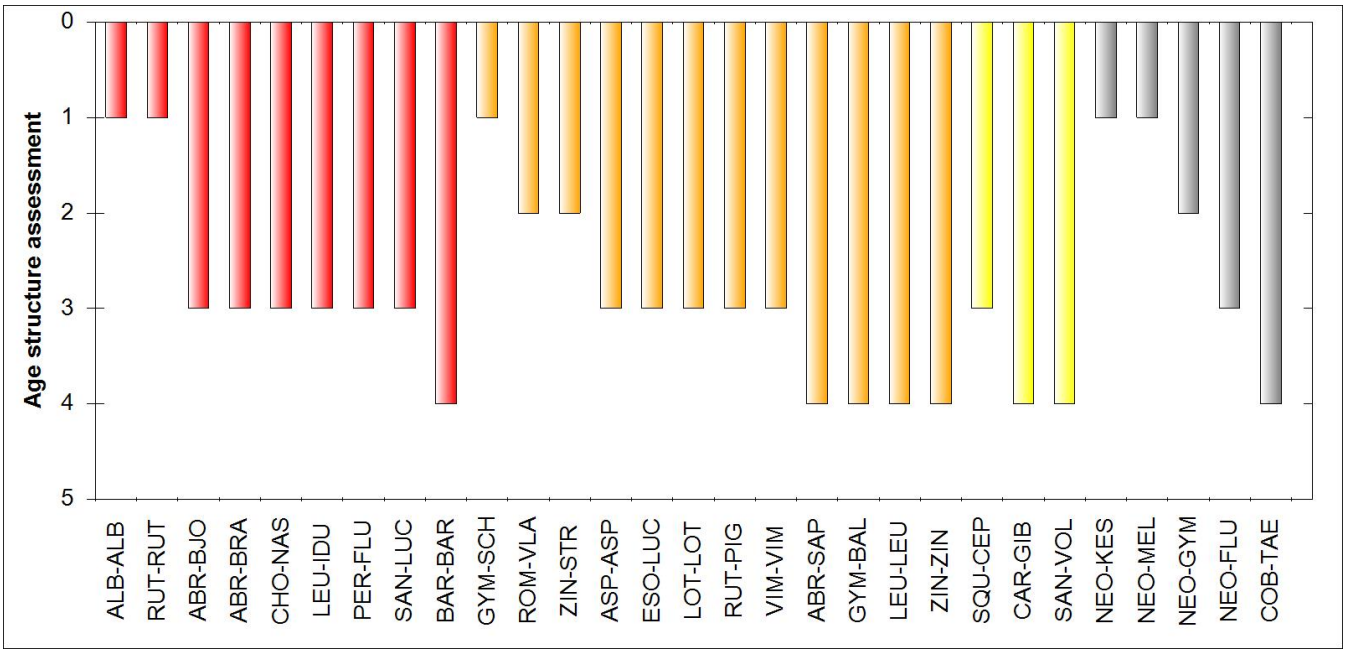


White-finned gudgeon (*Romanogobio vladykovi*), **2**



Zingel (*Zingel zingel*), **4**

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, Budapest downstream, HU_JDS32, 8/27/2013

Rating					
Stock data	Abundance Ind/ha	Biomass kg/ha			ko-criterion biomass
	9,016.9	125.2			OK

1. Species	Reference fish assemblage	actual (current)	Ratio/Deviation	Partial rating	
Species					
Dominant species	9	9	100%	1.0	
Subdominant species	21	12	57%	2.0	
Rare species	25	3	12%	3.0	
				2.0	
Ecological guilds					
Flow	5	4	1	2.0	
Reproduction	7	4	3	4.0	
				3.0	
Species diversity & guilds overall					**1.9**

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	9	9		2.7	
Subdominant species	21	12		3.9	
					3.1

Fishindex Austria without active ko-criterion				2.33

Biological quality element fish	FIA 2.33	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;

Send