Danube

Sulina - Sulina Arm, RO JDS 95 (RO JDS 95), 23.October 2013 FDA_ID 219

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

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, 23.October 2013

Biological quality element fish	FIA 2.47	Class 2	Good

Former classifications

Sep. 2007	121	FIA 5.00	Class 5	Bad
None				
None				

Information about and sampling conditions and location

Table 1: Key data and information on sampling, monitoring siteSulina - Sulina Arm, RO JDS 95

Watercourse name	**Danube**	Federal state	**not availabvle**
Monitoring site	**Sulina - Sulina Arm, RO JDS 95**	District	
Monitoring site number	**RO JDS 95**	Community	
Turnus number		Longitude (WGS 84, decimal) O	**29.1860523563**
sampling number		Latitude (WGS 84, decimal) N	**45.1828199765**
Survey-ID (FDA)	**219**	Route-ID	
Date	**10/23/2013**	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	**Danube Delta (C)**	Huet-zonation	**bream zone**
Biocenotic Region	**Metapotamon**	Adapt. Reference	**122**
River km mean	**21.0**	Altidude [m.a.s]	**0**
		Ø catchment basin [km²]	**801,400**
Section length [m]	**2,000**	Catchment-class	**more than 10.000km²**
Ø channel width [m]	**160**	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]	**2,824.0**
Average water depth [m]	**2m - 5m**	Lake above	**No**
Maximum water depth [m]	**5m - 10m**	Distance lake upstream [km]	
Geology	**calcareous**	Lake below	
Influence of sediment transport	**slightly affected**	Distance lake downstream [km]	
Ø wetted width [m]	**160**	Flow condition	**MQ - mean water up to riparian vegetation**
pH-value		Visible depth	**1**
SBV		Fishing conditions	**moderate**
Water temperature [°C] (F117)	**20.1**	Average annual air temperature [°C]	
Conductance, 25°C [µS/cm] (F118)	**410**		
Methods used and effort			
Strip-fishing, day		Number of runs	**1**
Fished length [m]	**2,750**	E-devices output [kW]	**11**
Fished area [m²]	**7,965**	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	**4,143**		

Comments on survey:

day sampling on 25th of september at bad sight and wind

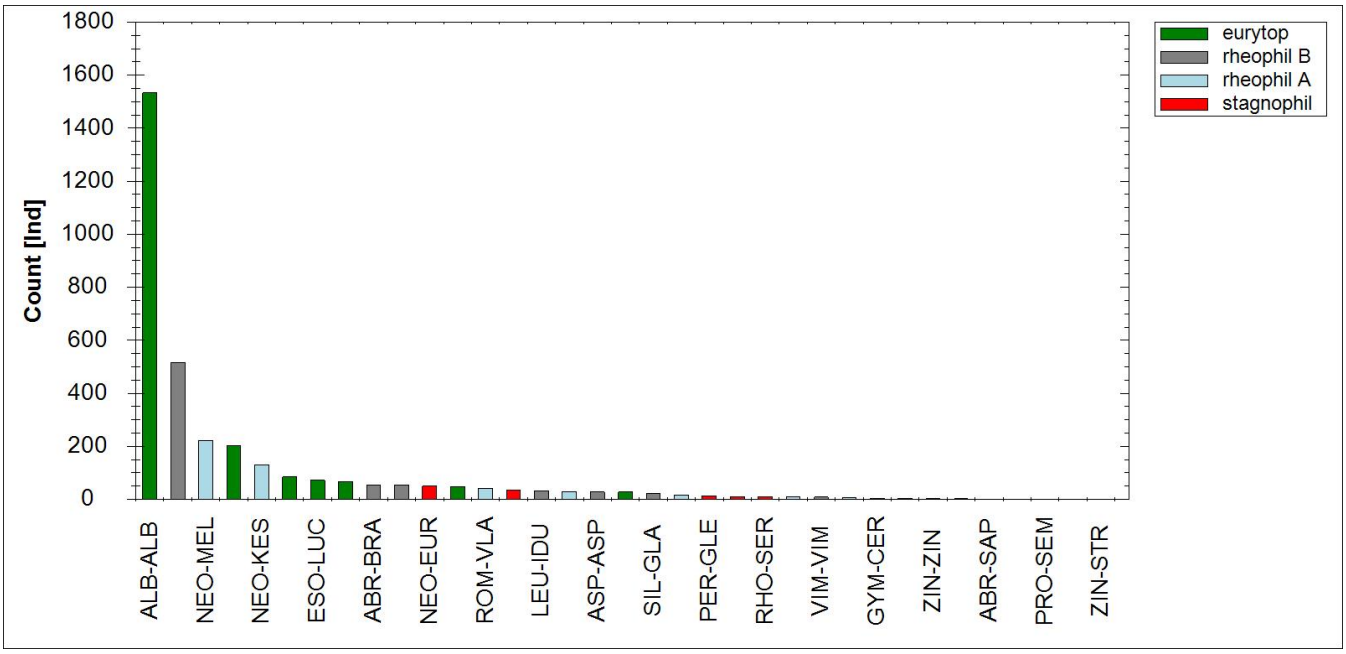
Table 2: Sampling effort at the monitoring site Sulina - Sulina Arm, RO JDS 95, October 2013

Habitat	Str. no	DG.	Length [m]	Width [m]	UE	Method
parapotamon (downstream connected side arm)	1	1	200	3		E-fishing day boat
parapotamon (downstream connected side arm)	2	1	200	3		E-fishing night
rip-rap	1	1	190	1.5		E-fishing day boat
rip-rap	2	1	300	3		E-fishing day boat
rip-rap	3	1	300	3		E-fishing day boat
rip-rap	4	1	310	3		E-fishing day boat
rip-rap	5	1	260	3		E-fishing day boat
rip-rap	6	1	155	1.5		E-fishing night
rip-rap	7	1	260	3		E-fishing night
rip-rap	8	1	250	3		E-fishing night
rip-rap	9	1	260	3		E-fishing night
rip-rap	10	1	300	3		E-fishing day boat
rip-rap	11	1	290	3		E-fishing day boat
rip-rap	12	1	300	3		E-fishing day boat
rock	24	1	500	2		E-fishing night
undet. middle of the river	16	1	500	2		electric beam trawl
undet. middle of the river	17	1	250	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	1000	2		electric beam trawl
undet. middle of the river	21	1	1000	2		electric beam trawl
undet. middle of the river	22	1	500	2		electric beam trawl
undet. middle of the river	23	1	200	2		electric beam trawl
indefinite waterside	1	1	300	3		E-fishing day boat

Table 3: Habitat weighting used at the monitoring site Sulina - Sulina Arm, RO JDS 95

Habitat	%
indefinite waterside	5
parapotamon (downstream connected side arm)	5
rip-rap	90
rock	0
undet. middle of the river	0

Catch result, fish assemblage and threatening status



Pic. 2: Species ranking diagramm of catch resultsDanube, Sulina - Sulina Arm, RO JDS 95

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
Syngnathidae	Black-striped pipefish	*Syngnathus abaster*	s	-			
Petromyzontidae	Ukrainian lamprey	*Eudontomyzon mariae*	s	II	VU	DD	
Salmonidae	Black Sea trout	*Salmo labrax*	s	-			
Cyprinidae	Asp	*Aspius aspius*	b	II	EN	DD	28
	Barbel	*Barbus barbus*	l	V	NT	LC	
	Bitterling	*Rhodeus amarus*	b	II	VU	LC	10
	Bleak	*Alburnus alburnus*	l	-	LC	LC	1,533
	Blue bream	*Abramis ballerus*	b	-	EN		
	Bream	*Abramis brama*	l	-	LC		55
	Carp	*Cyprinus carpio*	b	-	EN	DD	28
	Chub	*Squalius cephalus*	s	-	LC	LC	
	Crucian carp	*Carassius carassius*	s	-	EN	LC	
	Dace	*Leuciscus leuciscus*	s	-	NT	LC	
	Danube bleak	*Alburnus mento*	s	II	LC	DD	
	Ide	*Leuciscus idus*	b	-	EN	LC	32
	Kessler's gudgeon	*Romanogobio kesslerii*	s	II	EN	DD	
	Nase	*Chondrostoma nasus*	s	-	NT	LC	
	Prussian carp	*Carassius gibelio*	b	-	LC		201
	Roach	*Rutilus rutilus*	l	-	LC	LC	66
	Rudd	*Scardinius erythrophthalmus*	b	-	LC	LC	35
	Sabre carp	*Pelecus cultratus*	b	II; V	NT	DD	2
	Sunbleak	*Leucaspius delineatus*	s	-	EN	LC	
	Tench	*Tinca tinca*	b	-	VU	LC	4
	Vimba bream	*Vimba vimba*	b	-	VU	LC	8
	White bream	*Blicca bjoerkna*	l	-	LC	LC	516
	White-finned gudgeon	*Romanogobio vladykovi*	b	II	LC	DD	42
Esocidae	Pike	*Esox lucius*	b	-	NT		72
Gadidae	Burbot	*Lota lota*	s	-	VU		
Percidae	Danube ruffe	*Gymnocephalus baloni*	s	II; IV	VU	DD	1
	Perch	*Perca fluviatilis*	b	-	LC	LC	85
	Pikeperch	*Sander lucioperca*	b	-	NT	LC	53
	Ruffe	*Gymnocephalus cernuus*	s	-	LC	LC	4
	Schraetser	*Gymnocephalus schraetser*	s	II; V	VU	VU	15
	Streber	*Zingel streber*	s	II	EN	VU	1
	Volga pikeperch	*Sander volgensis*	s	-	EN	DD	
	Zingel	*Zingel zingel*	b	II; V	VU	VU	4
Siluridae	Wels catfish	*Silurus glanis*	b	-	VU	LC	23
Gobiidae	Beardless tadpole goby	*Benthophiloides brauneri*	s	-			
	Bighead goby	*Neogobius kessleri*	b	-	NE	DD	130
	Monkey goby	*Neogobius fluviatilis*	b	-	NE	DD	48
	Mushroom goby	*Neogobius eurycephalus*	s	-			50
	Racer goby	*Neogobius gymnotrachelus*	s	-	NE	DD	29
	Round goby	*Neogobius melanostomus*	s	-	NE	DD	222
	Stellate tadpole-goby	*Benthophilus stellatus*	s				5
	Tubenose goby	*Proterorhinus semilunaris*	b	-	EN	LC	1

Family	English name	Scient. name of species	Reference fish assemblage	FHH	Red List	IUCN	Count
Gasterosteidae	Threespine stickleback	*Gasterosteus aculeatus*	s	-	NE	LC	
Cobitidae	Balcan loach	*Sabanejewia balcanica*	s	II	EN	DD	
	Bulgarian golden loach	*Sabanejewia bulgarica*	s				1
	Danubian spined loach	*Cobitis elongatoides*	s	-			
	Weatherfish	*Misgurnus fossilis*	s	II	CR	NT	
Balitoridae	Danube bream	*Abramis sapa*	l	-	EN		1
Anguillidae	Eel	*Anguilla anguilla*	s	-	RE		
Acipenseridae	Danube sturgeon	*Acipenser gueldenstaedtii*	b	V	RE	EN	
	Fringebarbel sturgeon	*Acipenser nudiventris*	s	V	RE	EN	
	Giant sturgeon	*Huso huso*	b	V	RE	EN	
	Starry sturgeon	*Acipenser stellatus*	b	V	RE	EN	
	Sterlet	*Acipenser ruthenus*	b	V	CR	VU	
Clupeidae	Azov shad	*Alosa tanaica*	s				
	Black Sea sprat	*Clupeonella cultriventris*	s				
	European mud-minnow	*Umbra krameri*	s	II	CR	VU	
	Pontic shad	*Alosa immaculata*	s	-			
Gobiidae	Chinese sleeper	*Perccottus glenii*		-			14
Cobitidae	Spined loach	*Cobitis taenia*		II	VU	LC	8
Centrarchidae	Pumkinseed	*Lepomis gibbosus*		-	NE		10

Observed:: reference fish assemblage	32Taxa :: 61Taxa	Taxa complete	35
Count species of reference fish assemblage	3,305	Total count	3,337

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

l	Dominant species
b	Subdominant species
s	Rare species
a!	Allochthon
N!	Neozoa

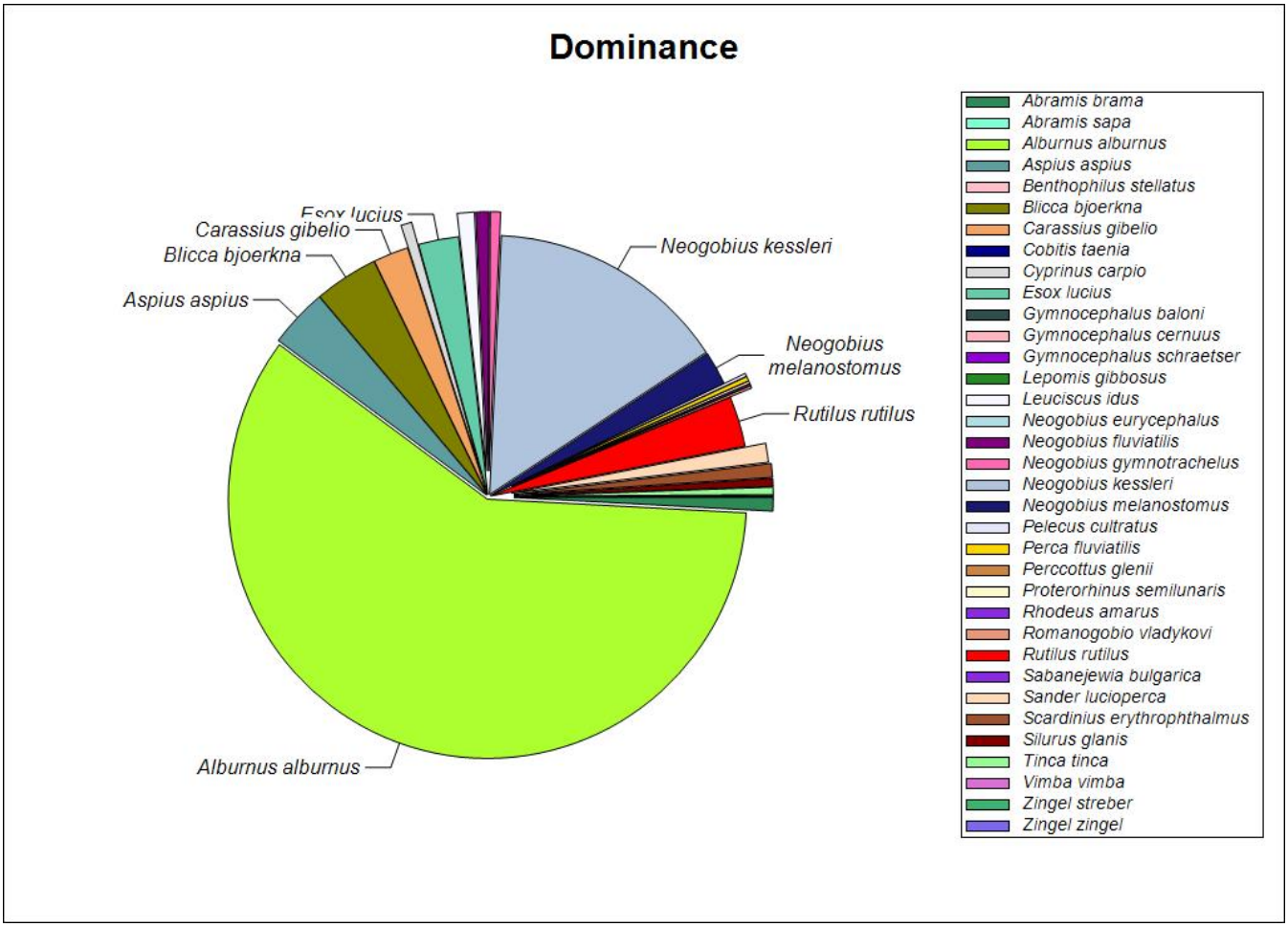
FFH...Fauna-Flora-Habitat-Directive (Council Directive 92/43/EEC of 21.Mai 1992)

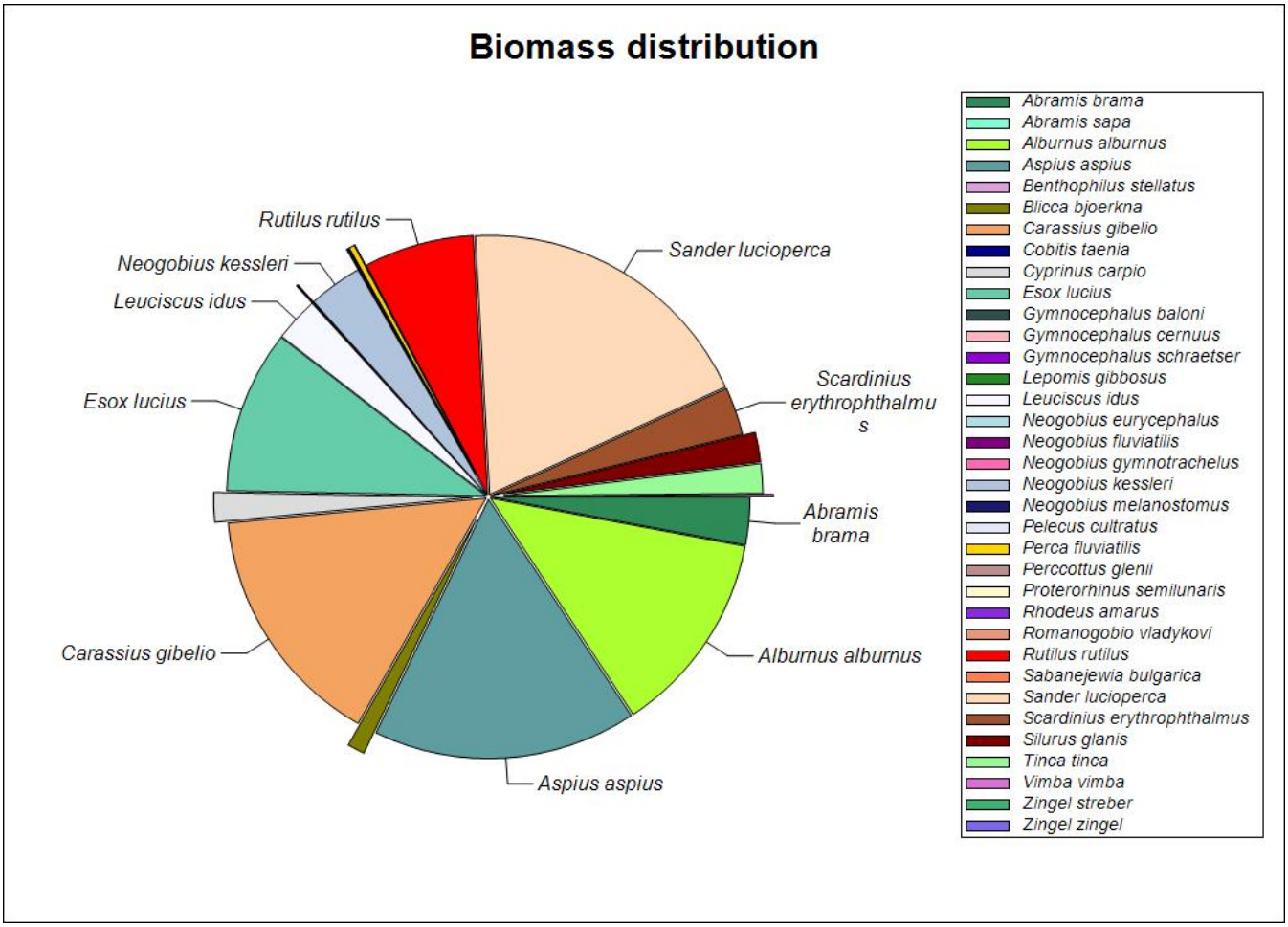
II	Species listed in Annex II of the FFH- Directive (nature reserves have to be set out for this species)
IV	Species listed in Annex IV of the FFH- Directive (strict protection of animals and plants)
V	Species listed in Annex V of the FFH- Directive (species whose collection and use is subject to adminitrativic 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, Sulina - Sulina Arm, RO JDS 95, 10/23/2013

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	28	105.6		21.5		25.6	203.7	3	b
Bighead goby	NEO-KES	130	431.4		4.4		8.0	10.2	1	b
Bitterling	RHO-SER	10	3.3		0.0		5.1	0.8	2	b
Bleak	ALB-ALB	1,533	1,702.5		16.7		8.3	9.8	1	l
Bream	ABR-BRA	55	24.1		3.9		10.8	160.9	3	l
Bulgarian golden loach	SAB-BUL	1	0.0		0.0	0.0	3.5	0.0	4	s
Carp	CYP-CAR	28	19.5		2.4		26.0	123.9	3	b
Chinese sleeper	PER-GLE	14	0.0		0.0	0.0	5.3	0.0	1	
Danube bream	ABR-SAP	1	0.0		0.0	0.0	8.4	0.0	4	l
Danube ruffe	GYM-BAL	1	0.0		0.0	0.0	11.5	0.0	4	s
Ide	LEU-IDU	32	30.6		3.6		20.0	118.0	3	b
Monkey goby	NEO-FLU	48	23.2		0.1		5.1	3.0	2	b
Mushroom goby	NEO-EUR	50	0.0		0.0	0.0	9.4	0.0	1	s
Perch	PER-FLU	85	8.1		0.5		10.4	55.7	1	b
Pike	ESO-LUC	72	72.0		13.3		28.9	185.0	2	b
Pikeperch	SAN-LUC	53	34.0		25.0		23.1	734.2	1	b
Prussian carp	CAR-GIB	201	63.0		20.0		14.3	316.8	3	b
Pumkinseed	LEP-GIB	10	0.0		0.0	0.0	10.1	0.0	3	
Racer goby	NEO-GYM	29	18.6		0.1		6.2	4.4	2	s
Roach	RUT-RUT	66	89.9		9.0		15.7	100.1	1	l
Round goby	NEO-MEL	222	60.3		0.1		5.5	2.0	1	s
Rudd	SCA-ERY	35	24.6		3.9		20.1	158.8	2	b
Ruffe	GYM-CER	4	0.0		0.0	0.0	11.0	0.0	3	s
Sabre carp	PEL-CUL	2	5.6		0.1		14.5	15.2	4	b
Schraetser	GYM-SCH	15	0.0		0.0	0.0	9.6	0.0	3	s
Spined loach	COB-TAE	8	0.0		0.0	0.0	11.3	0.0	2	
Stellate tadpole-goby	BEN-STE	5	0.0		0.0	0.0	3.1	0.0	2	s
Streber	ZIN-STR	1	0.0		0.0	0.0	7.6	0.0	4	s
Tench	TIN-TIN	4	13.3		2.4		21.9	181.2	3	b
Tubenose goby	PRO-SEM	1	4.6		0.0		5.0	1.3	4	b
Vimba bream	VIM-VIM	8	2.8		0.2		17.0	64.4	3	b
Wels catfish	SIL-GLA	23	13.9		2.4		34.4	172.8	3	b
White bream	ABR-BJO	516	114.2		1.4		17.6	12.4	3	l
White-finned gudgeon	ROM-VLA	42	4.6		0.0		6.6	6.0	2	b
Zingel	ZIN-ZIN	4	0.0		0.0	0.0	19.3	0.0	3	b
32 species of 61	Total	3,337	2,869.7		130.9					





Pic. 3: Dominance und Biomass distribution

Shannon-Index: 2.098

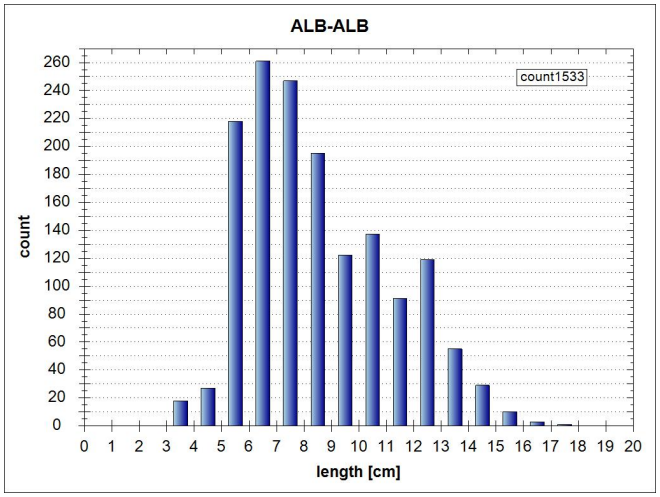
Equitability: 0.590

Biometrics and catch rate

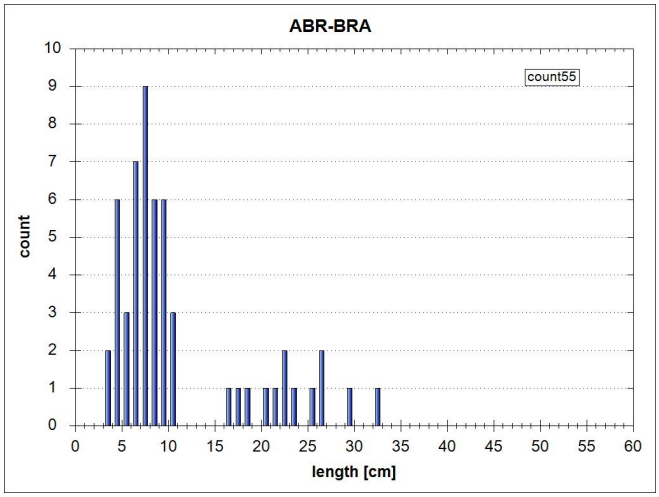
Table 6: biometrics of each species and catch specific parameters

	Lt [cm]				Statist.	Catch-	Catch-effectivity		
Fish species	Min		Max	n	Method	Probability [%]	Min	MW	Max
Asp	11.0	25.6	50.0	28			0.15	0.39	0.70
Bighead goby	4.3	8.0	13.0	130			0.15	0.32	0.70
Bitterling	4.0	5.1	6.0	10			0.25	0.46	0.50
Bleak	3.0	8.3	17.0	1,533			0.10	0.42	0.70
Bream	3.1	10.8	32.0	55			0.15	0.60	0.70
Bulgarian golden loach	3.5	3.5	3.5	1			0.70	0.70	0.70
Carp	16.0	26.0	40.0	28			0.30	0.44	0.50
Chinese sleeper	4.5	5.3	7.0	14			0.50	0.50	0.50
Danube bream	8.4	8.4	8.4	1			0.70	0.70	0.70
Danube ruffe	11.5	11.5	11.5	1			0.50	0.50	0.50
Ide	8.0	20.0	30.0	32			0.20	0.35	0.50
Monkey goby	3.0	5.1	9.0	48			0.30	0.60	0.70
Mushroom goby	7.5	9.4	14.5	50			0.50	0.50	0.50
Perch	7.0	10.4	20.5	85			0.25	0.48	0.70
Pike	14.0	28.9	80.0	72			0.30	0.38	1.00
Pikeperch	6.0	23.1	69.0	53			0.15	0.43	1.00
Prussian carp	6.5	14.3	29.0	201			0.20	0.45	0.70
Pumkinseed	8.5	10.1	13.0	10			0.30	0.48	0.50
Racer goby	3.8	6.2	8.5	29			0.30	0.51	0.70
Roach	8.5	15.7	27.0	66			0.15	0.43	0.70
Round goby	1.9	5.5	13.0	222			0.30	0.61	0.70
Rudd	13.5	20.1	29.5	35			0.30	0.50	0.70
Ruffe	9.5	11.0	12.0	4			0.50	0.50	0.50
Sabre carp	14.5	14.5	14.5	2			0.50	0.50	0.50
Schraetser	7.2	9.6	16.7	15			0.70	0.70	0.70
Spined loach	9.5	11.3	15.0	8			0.50	0.50	0.50
Stellate tadpole-goby	2.5	3.1	4.5	5			0.70	0.70	0.70
Streber	7.6	7.6	7.6	1			0.70	0.70	0.70
Tench	16.0	21.9	29.5	4			0.25	0.25	0.25
Tubenose goby	5.0	5.0	5.0	1			0.30	0.30	0.30
Vimba bream	13.3	17.0	22.2	8			0.50	0.67	0.70
Wels catfish	15.5	34.4	60.0	23			0.30	0.38	0.70
White bream	1.0	17.6	55.0	516			0.20	0.33	0.70
White-finned gudgeon	4.8	6.6	9.0	42			0.30	0.69	0.70
Zingel	10.8	19.3	24.2	4			0.70	0.70	0.70
35 species			Sum	3,337					

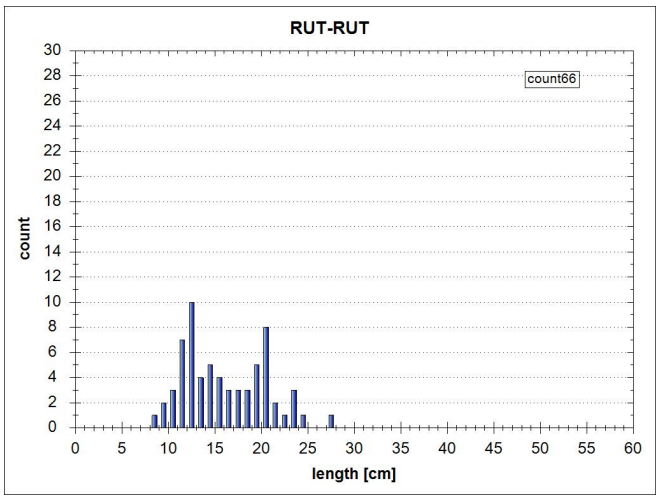
Population structure of dominant species and subdominante species (total catch)



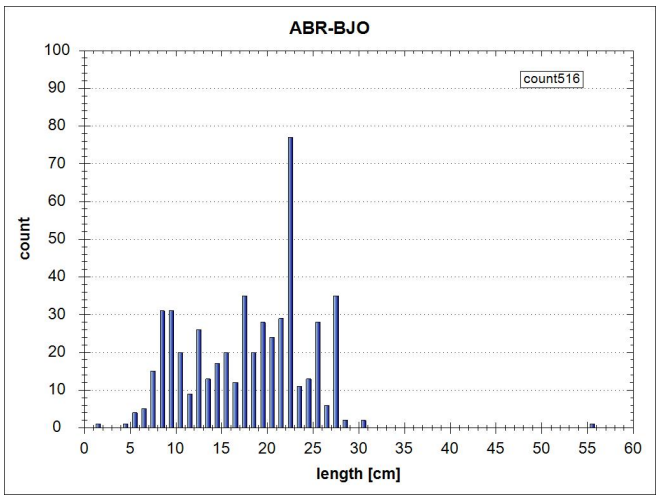
Bleak (*Alburnus alburnus*), **1**



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

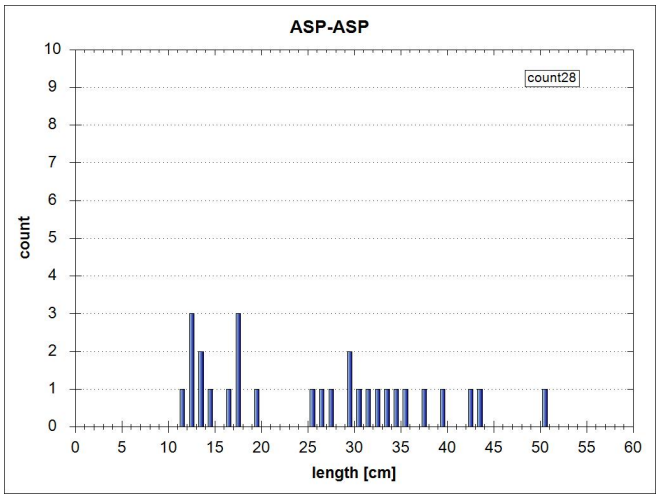


Roach (*Rutilus rutilus*), **1**

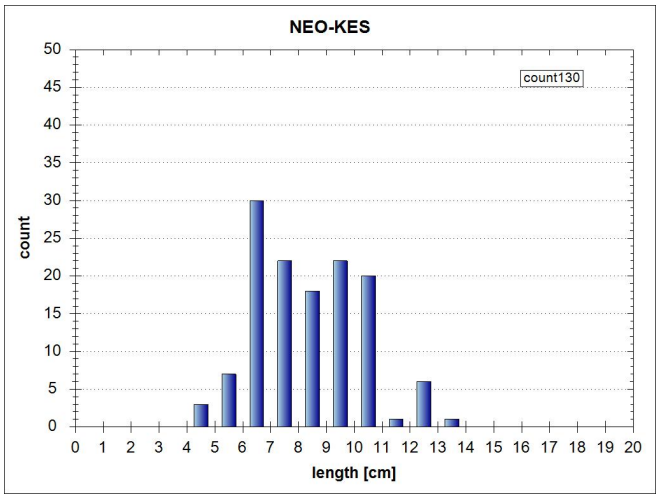


White bream (*Blicca bjoerkna*), **3**

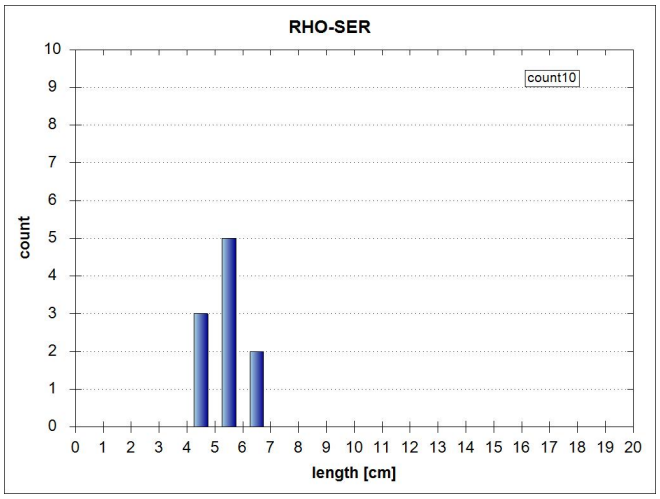
Pic. 4: Length-frequency diagram of dominant species (n>3), Oct. 2013



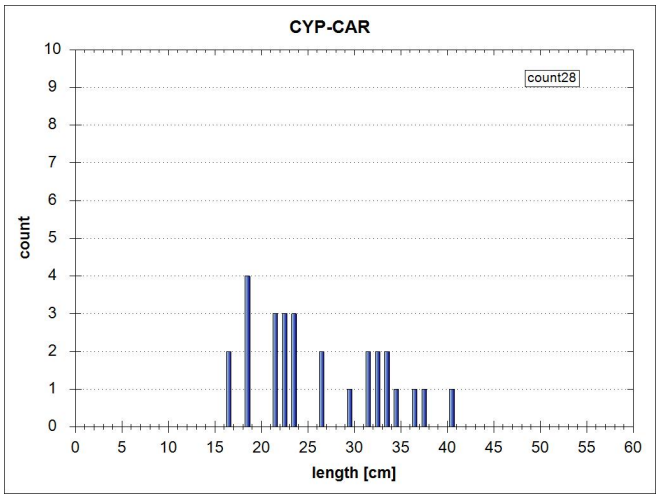
Asp (*Aspius aspius*), **3**



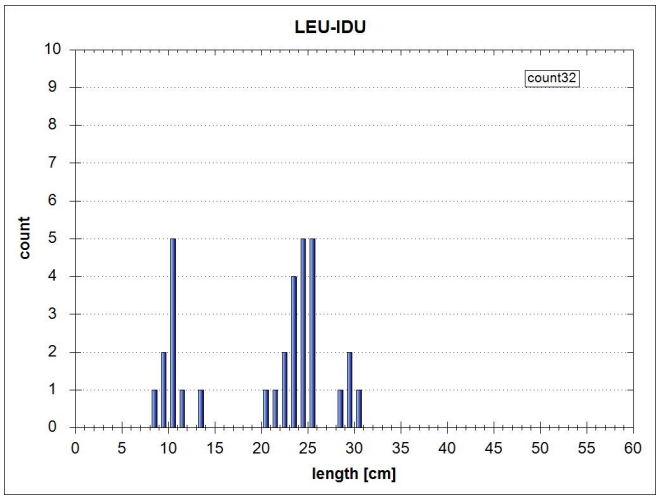
Bighead goby (*Neogobius kessleri*), **1**



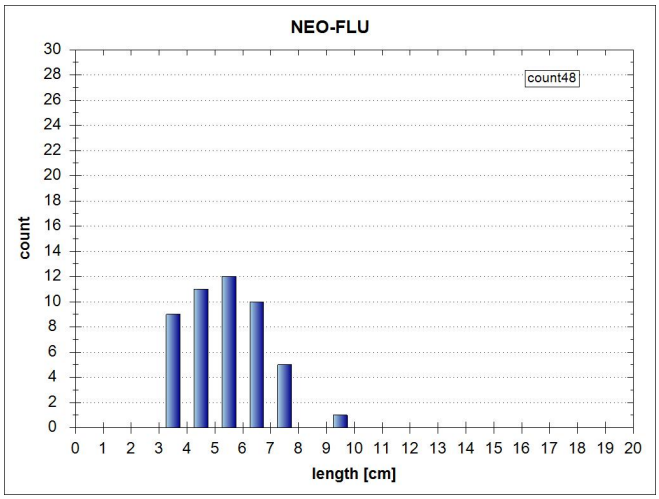
Bitterling (*Rhodeus amarus*), **2**



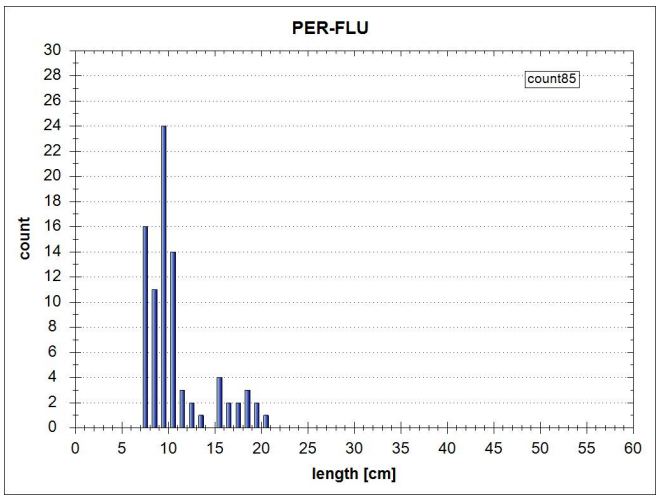
Carp (*Cyprinus carpio*), **3**



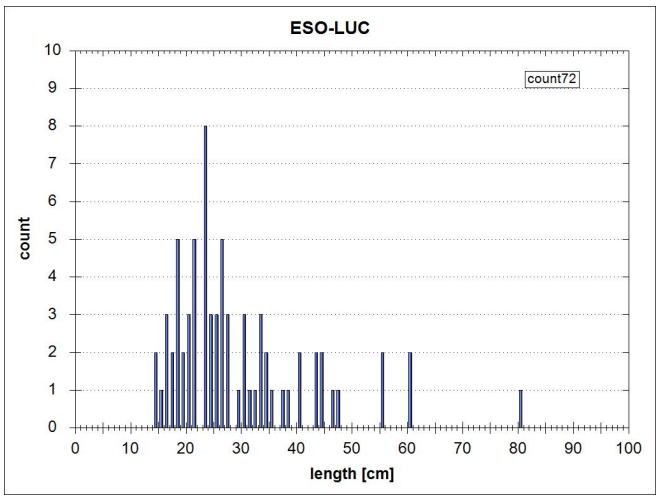
Ide (*Leuciscus idus*), **3**



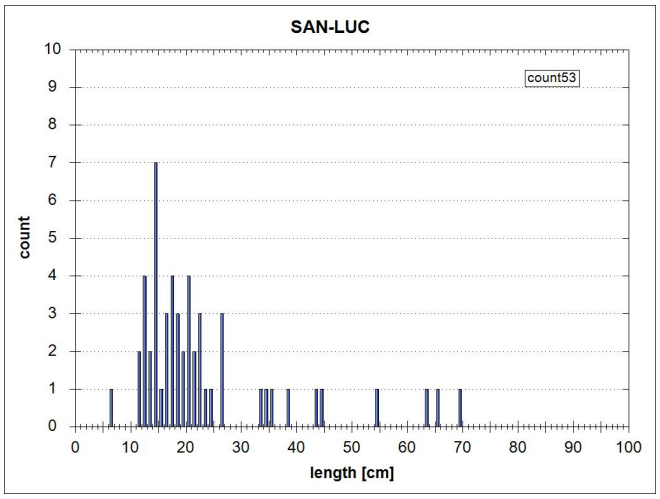
Monkey goby (*Neogobius fluviatilis*), **2**



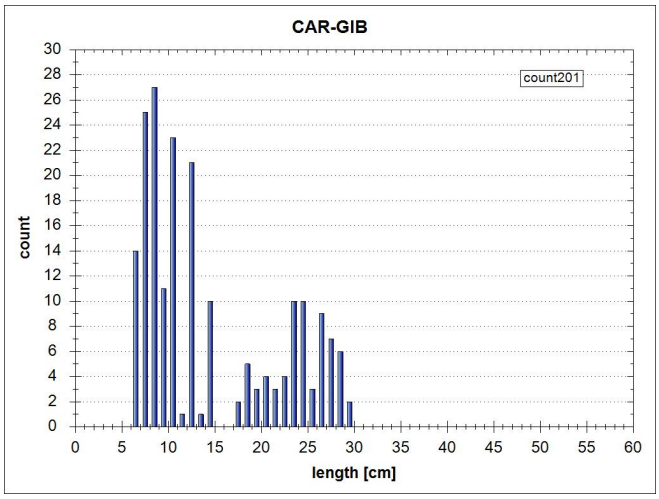
Perch (*Perca fluviatilis*), **1**



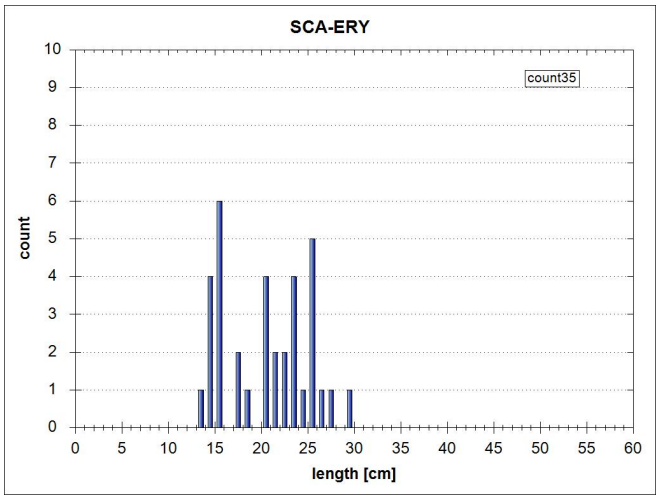
Pike (*Esox lucius*), **2**



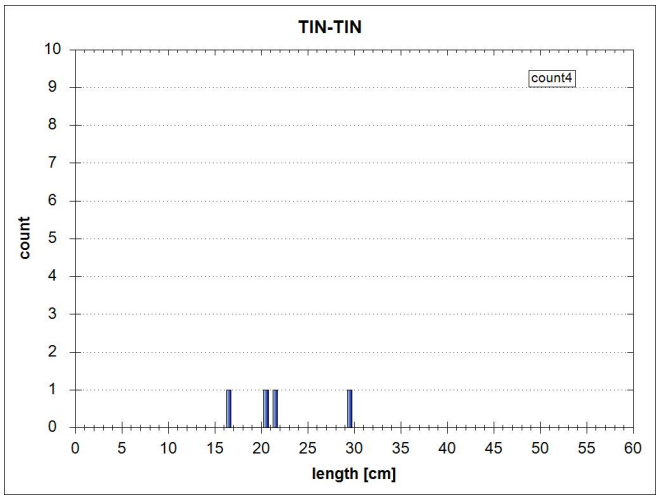
Pikeperch (*Sander lucioperca*), **1**



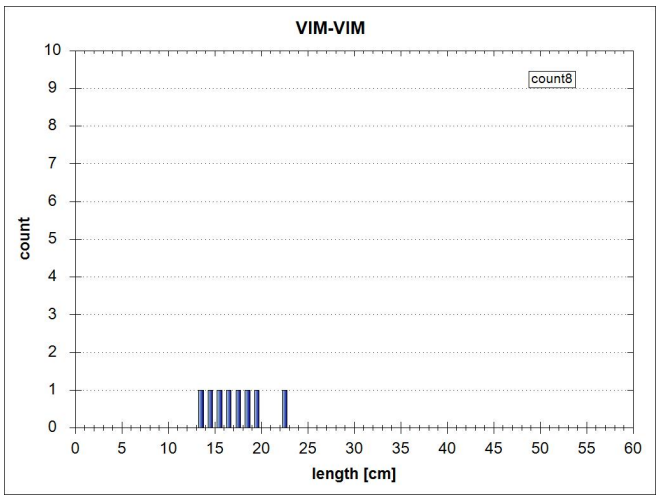
Prussian carp (*Carassius gibelio*), **3**



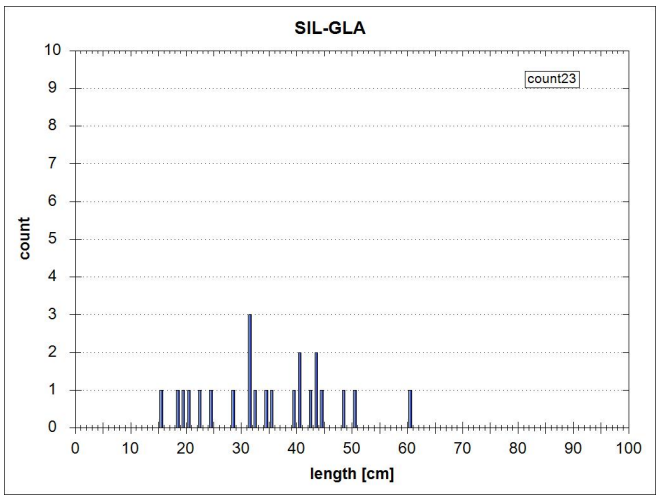
Rudd (*Scardinius erythrophthalmus*), **2**



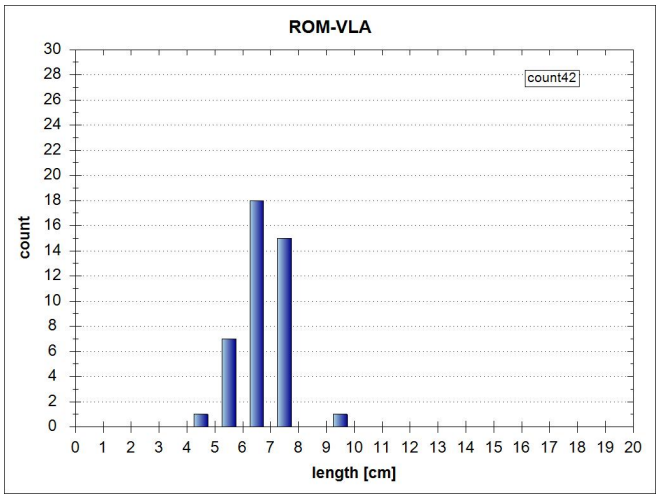
Tench (*Tinca tinca*), **3**



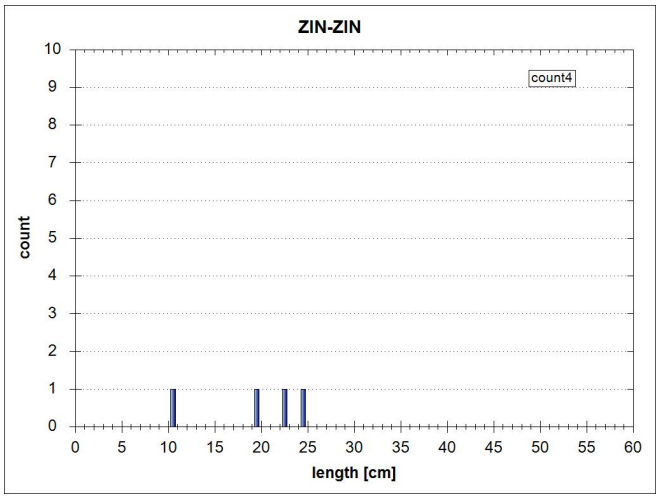
Vimba bream (*Vimba vimba*), **3**



Wels catfish (*Silurus glanis*), **3**

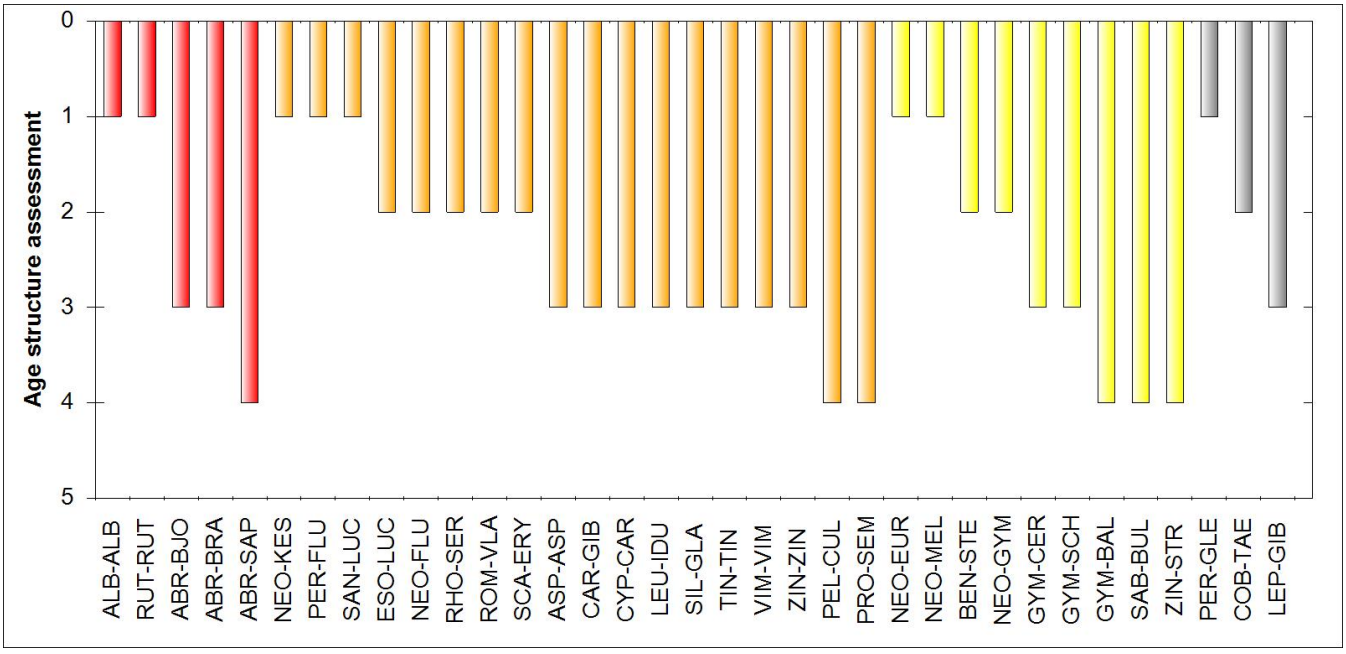


White-finned gudgeon (*Romanogobio vladykovi*), **2**



Zingel (*Zingel zingel*), **3**

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



Pic. 6: 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, Sulina - Sulina Arm, RO JDS 95, 10/23/2013

Rating					
Stock data	Abundance Ind/ha	Biomass kg/ha			ko-criterion biomass
	2,869.8	130.9			OK

1. Species	Reference fish assemblage	actual (current)	Ratio/Deviation	Partial rating	
Species					
Dominant species	6	5	83%	3.0	
Subdominant species	23	18	78%	1.0	
Rare species	32	9	28%	2.0	
				2.0	
Ecological guilds					
Flow	7	4	3	4.0	
Reproduction	7	5	2	3.0	
				3.5	
Species diversity & guilds overall					**2.6**

2. Dominance	Reference fish assemblage	actual (current)	Difference		
Fish region index	6.5	6.4	0.1		**1.0**

3. Population structure	Reference fish assemblage	actual (current)		Partial rating (1-5)	
Dominant species	6	5		2.8	
Subdominant species	23	18		3.0	
					2.9

Fishindex Austria without active ko-criterion				2.47
Biological quality element fish	**FIA 2.47**	**Class 2**	**Good**	

Date of Assessment:3/18/2014

Comment BAW-IGF

- no comment -

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

Recommended improvements with priority ranking if possible;

Send