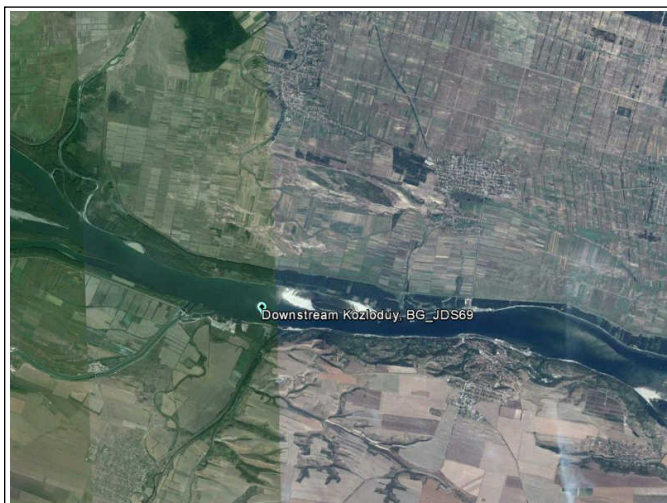


**Danube****Downstream Kozloduy, BG\_JDS69 (BG\_JDS69 ), 24.August 2013**

FDA\_ID 207



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



Pic. 2: Monitoring site Downstream Kozloduy, BG\_JDS69

**Description of monitoring site**

Gewässerbreite JDS69: 1230m

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

Biological quality element fish	None
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**Ecological status class, current survey, 24.August 2013**

Biological quality element fish	FIA 5.00	Class 5	Bad
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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 siteDownstream Kozloduy, BG\_JDS69

Watercourse name	<b>Danube</b>	Federal state	<b>not available</b>
Monitoring site	<b>Downstream Kozloduy, BG_JDS69</b>	District	
Monitoring site number	<b>BG_JDS69</b>	Community	
Turnus number		Longitude (WGS 84, decimal) O	<b>23.87793</b>
sampling number		Latitude (WGS 84, decimal) N	<b>43.751067</b>
Survey-ID (FDA)	<b>207</b>	Route-ID	
Date	<b>8/24/2013</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	
Fish bioregion	<b>Western Pomtic Danube (943-375,5) (8)</b>	Huet-zonation	<b>bream zone</b>
Biocenotic Region	<b>Metapotamon</b>	Adapt. Reference	<b>121</b>
River km from	<b>690.0</b>	Altitude [m.a.s]	<b>22</b>
River km to	<b>680.0</b>	Ø catchment basin [km²]	<b>600,000</b>
Section length [m]	<b>10,000</b>	Catchment-class	<b>more than 10.000km²</b>
Ø channel width [m]	<b>1200</b>	Slope [‰]	<b>0.04</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>2,160.0</b>
Average water depth [m]	<b>2m - 5m</b>	Lake above	<b>No</b>
Maximum water depth [m]	<b>5m - 10m</b>	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>1200</b>	Flow condition	<b>MQ - mean water up to riparian vegetation</b>
pH-value		Visible depth	
SBV		Fishing conditions	
Water temperature [°C] (F117)		Average annual air temperature [°C]	
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>2,700</b>	E-devices output [kW]	
Fished area [m²]	<b>10,800</b>	Output voltage	
		Number of anodes	
		Number of strips/sections	<b>4</b>
and additional methods	<b>Fished area [m²]</b>	additional methods	<b>Effort [UE]</b>
beach seining	<b>1,500</b>		
E-Fishing by night	<b>2,700</b>		

**Comments on survey:**

Befischung nur durch national team- sampling point 5

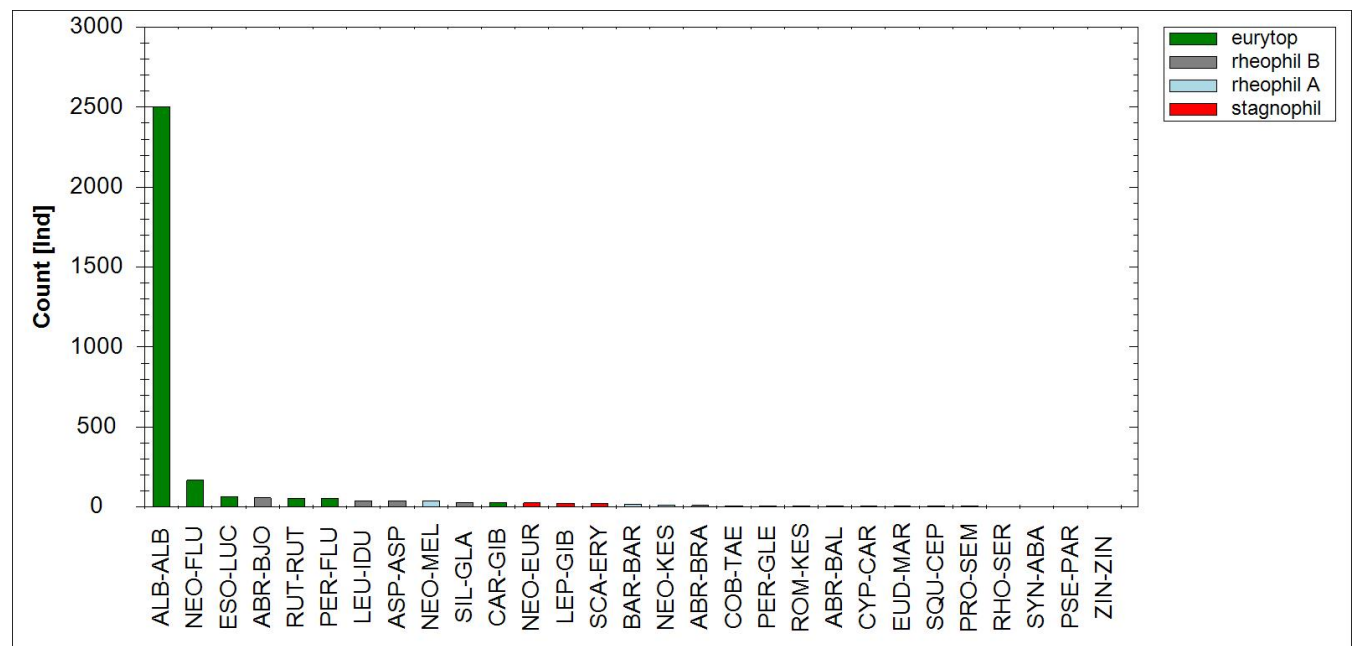
Table 2: Sampling effort at the monitoring site Downstream Kozloduy, BG\_JDS69, August 2013

Habitat	Str. no	DG	Length [m]	Width [m]	UE	Method
rock	2	1	1000	4		E-fishing day boat
rock	3	1	800	4		E-fishing day boat
rock	4	1	600	4		E-fishing day boat
rock	5	1	300	4		E-fishing day boat
rock	6	1	300	3		E-fishing night
rock	7	1	300	3		E-fishing night
rock	8	1	300	3		E-fishing night
indefinite waterside	1	1	50	30		beach seining

Table 3: Habitat weighting used at the monitoring site Downstream Kozloduy, BG\_JDS69

Habitat	%
indefinite waterside	100
rock	0

### Catch result, fish assemblage and threatening status



Pic. 3: Species ranking diagramm of catch resultsDanube, Downstream Kozloduy, BG\_JDS69

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	<i>Syngnathus abaster</i>	s	-			2
Petromyzontidae	Ukrainian lamprey	<i>Eudontomyzon mariae</i>	s	II	VU	DD	5
Cyprinidae	Asp	<i>Aspius aspius</i>	b	II	EN	DD	39
	Barbel	<i>Barbus barbus</i>	b	V	NT	LC	17
	Bitterling	<i>Rhodeus amarus</i>	b	II	VU	LC	2
	Bleak	<i>Alburnus alburnus</i>	I	-	LC	LC	2,500
	Blue bream	<i>Abramis ballerus</i>	b	-	EN		5
	Bream	<i>Abramis brama</i>	I	-	LC		9
	Carp	<i>Cyprinus carpio</i>	b	-	EN	DD	5
	Chub	<i>Squalius cephalus</i>	s	-	LC	LC	5
	Crucian carp	<i>Carassius carassius</i>	s	-	EN	LC	
	Dace	<i>Leuciscus leuciscus</i>	s	-	NT	LC	
	Danube bleak	<i>Alburnus mento</i>	s	II	LC	DD	
	Danubian gudgeon	<i>Romanogobio uranoscopus</i>	s	II	CR	DD	
	Gudgeon	<i>Gobio gobio</i>	s	-	LC	LC	
	Ide	<i>Leuciscus idus</i>	b	-	EN	LC	40
	Kessler's gudgeon	<i>Romanogobio kesslerii</i>	s	II	EN	DD	6
	Nase	<i>Chondrostoma nasus</i>	s	-	NT	LC	
	Prussian carp	<i>Carassius gibelio</i>	b	-	LC		26
	Roach	<i>Rutilus rutilus</i>	I	-	LC	LC	54
	Rudd	<i>Scardinius erythrophthalmus</i>	s	-	LC	LC	21
	Sabre carp	<i>Pelecus cultratus</i>	b	II; V	NT	DD	
	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	
	White bream	<i>Blicca bjoerkna</i>	I	-	LC	LC	57
	White-finned gudgeon	<i>Romanogobio vladykovi</i>	I	II	LC	DD	
Esocidae	Pike	<i>Esox lucius</i>	b	-	NT		66
Gadidae	Burbot	<i>Lota lota</i>	s	-	VU		
Percidae	Danube ruffe	<i>Gymnocephalus baloni</i>	s	II; IV	VU	DD	
	Perch	<i>Perca fluviatilis</i>	b	-	LC	LC	52
	Pikeperch	<i>Sander lucioperca</i>	b	-	NT	LC	
	Ruffe	<i>Gymnocephalus cernuus</i>	s	-	LC	LC	
	Schraetser	<i>Gymnocephalus schraetser</i>	b	II; V	VU	VU	
	Streber	<i>Zingel streber</i>	s	II	EN	VU	
	Volga pikeperch	<i>Sander volgensis</i>	s	-	EN	DD	
	Zingel	<i>Zingel zingel</i>	b	II; V	VU	VU	1
Siluridae	Wels catfish	<i>Silurus glanis</i>	b	-	VU	LC	29
Gobiidae	Bighead goby	<i>Neogobius kessleri</i>	s	-	NE	DD	14
	Monkey goby	<i>Neogobius fluviatilis</i>	I	-	NE	DD	167
	Racer goby	<i>Neogobius gymnotrachelus</i>	s	-	NE	DD	
	Round goby	<i>Neogobius melanostomus</i>	s	-	NE	DD	37
	Tubenose goby	<i>Proterorhinus semilunaris</i>	b	-	EN	LC	4
Cobitidae	Balkan loach	<i>Sabanejewia balcanica</i>	s	II	EN	DD	
	Bulgarian golden loach	<i>Sabanejewia bulgarica</i>	s				

Family	English name	Scient. name of species	Reference fish assemblage	FHH	Red List	IUCN	Count
	Danubian spined loach	<i>Cobitis elongatoides</i>	b	-			
	Weatherfish	<i>Misgurnus fossilis</i>	s	II	CR	NT	
Balitoridae	Danube bream	<i>Abramis sapo</i>	I	-	EN		
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>	s	V	CR	VU	
Clupeidae	Azov shad	<i>Alosa tanaica</i>	s				
	European mud-minnow	<i>Umbra krameri</i>	s	II	CR	VU	
	Pontic shad	<i>Alosa immaculata</i>	s	-			
Cyprinidae	Stone moroko	<i>Pseudorasbora parva</i>		-	NE		1
Gobiidae	Chinese sleeper	<i>Perccottus glenii</i>		-			6
	Mushroom goby	<i>Neogobius eurycephalus</i>		-			26
Cobitidae	Spined loach	<i>Cobitis taenia</i>		II	VU	LC	8
Centrarchidae	Pumkinseed	<i>Lepomis gibbosus</i>		-	NE		23

Observed:: reference fish assemblage 24Taxa :: 56Taxa

Taxa complete 29

Count species of reference fish assemblage 3,163

Total count 3,227

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, Downstream Kozloduy, BG\_JDS69, 8/24/2013

English name	Species Code	Count	Abu [Ind/ha]	95% Konfid.	Biom [kg/ha]	95% Konfid.	Weight [g] median all over	Mean Weight [g] total	Population structure	Reference fish assemblage
Asp	ASP-ASP	39	0.0		0.0	0.0	15.9	0.0	3	b
Barbel	BAR-BAR	17	0.0		0.0	0.0	12.8	0.0	3	b
Bighead goby	NEO-KES	14	0.0		0.0	0.0	7.9	0.0	2	s
Bitterling	RHO-SER	2	0.0		0.0	0.0	4.0	0.0	4	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
Black-striped pipefish	SYN-ABA	2	0.0		0.0	0.0	12.3	0.0	4	s
Bleak	ALB-ALB	2,500	0.0		0.0	0.0	8.7	0.0	1	l
Blue bream	ABR-BAL	5	0.0		0.0	0.0	7.7	0.0	4	b
Bream	ABR-BRA	9	0.0		0.0	0.0	11.1	0.0	3	l
Carp	CYP-CAR	5	0.0		0.0	0.0	13.3	0.0	3	b
Chinese sleeper	PER-GLE	6	0.0		0.0	0.0	4.5	0.0	2	
Chub	SQU-CEP	5	0.0		0.0	0.0	22.1	0.0	3	s
Idc	LEU-IDU	40	0.0		0.0	0.0	9.9	0.0	3	b
Kessler's gudgeon	ROM-KES	6	0.0		0.0	0.0	7.5	0.0	3	s
Monkey goby	NEO-FLU	167	0.0		0.0	0.0	6.5	0.0	2	l
Mushroom goby	NEO-EUR	26	0.0		0.0	0.0	7.2	0.0	2	
Perch	PER-FLU	52	0.0		0.0	0.0	8.7	0.0	2	b
Pike	ESO-LUC	66	0.0		0.0	0.0	25.4	0.0	3	b
Prussian carp	CAR-GIB	26	0.0		0.0	0.0	13.7	0.0	2	b
Pumpkinseed	LEP-GIB	23	0.0		0.0	0.0	7.3	0.0	2	
Roach	RUT-RUT	54	0.0		0.0	0.0	7.4	0.0	3	l
Round goby	NEO-MEL	37	0.0		0.0	0.0	7.1	0.0	2	s
Rudd	SCA-ERY	21	0.0		0.0	0.0	9.4	0.0	2	s
Spined loach	COB-TAE	8	0.0		0.0	0.0	8.8	0.0	3	
Stone moroko	PSE-PAR	1	0.0		0.0	0.0	7.0	0.0	4	
Tubenose goby	PRO-SEM	4	0.0		0.0	0.0	3.1	0.0	4	b
Ukrainian lamprey	EUD-MAR	5	0.0		0.0	0.0	12.5	0.0	3	s
Wels catfish	SIL-GLA	29	0.0		0.0	0.0	10.7	0.0	3	b
White bream	ABR-BJO	57	0.0		0.0	0.0	7.6	0.0	3	l
Zingel	ZIN-ZIN	1	0.0		0.0	0.0	14.5	0.0	4	b
24 species of 56	Total	3,227	0.0		0.0	0.0				

## Dominance

	<i>Abramis ballerus</i>
	<i>Abramis brama</i>
	<i>Alburnus alburnus</i>
	<i>Aspius aspius</i>
	<i>Barbus barbus</i>
	<i>Blicca bjoerkna</i>
	<i>Carassius gibelio</i>
	<i>Cobitis taenia</i>
	<i>Cyprinus carpio</i>
	<i>Esox lucius</i>
	<i>Eudontomyzon mariae</i>
	<i>Lepomis gibbosus</i>
	<i>Leuciscus idus</i>
	<i>Neogobius eurycephalus</i>
	<i>Neogobius fluviatilis</i>
	<i>Neogobius kessleri</i>
	<i>Neogobius melanostomus</i>
	<i>Perca fluviatilis</i>
	<i>Percottus glenii</i>
	<i>Proterorhinus semilunaris</i>
	<i>Pseudorasbora parva</i>
	<i>Rhodeus amarus</i>
	<i>Romanogobio kessleri</i>
	<i>Rutilus rutilus</i>
	<i>Scardinius erythrophthalmus</i>
	<i>Silurus glanis</i>
	<i>Squalius cephalus</i>
	<i>Syngnathus abaster</i>
	<i>Zingel zingel</i>

## Biomass distribution

	<i>Abramis ballerus</i>
	<i>Abramis brama</i>
	<i>Alburnus alburnus</i>
	<i>Aspius aspius</i>
	<i>Barbus barbus</i>
	<i>Blicca bjoerkna</i>
	<i>Carassius gibelio</i>
	<i>Cobitis taenia</i>
	<i>Cyprinus carpio</i>
	<i>Esox lucius</i>
	<i>Eudontomyzon mariae</i>
	<i>Lepomis gibbosus</i>
	<i>Leuciscus idus</i>
	<i>Neogobius eurycephalus</i>
	<i>Neogobius fluviatilis</i>
	<i>Neogobius kessleri</i>
	<i>Neogobius melanostomus</i>
	<i>Perca fluviatilis</i>
	<i>Percottus glenii</i>
	<i>Proterorhinus semilunaris</i>
	<i>Pseudorasbora parva</i>
	<i>Rhodeus amarus</i>
	<i>Romanogobio kessleri</i>
	<i>Rutilus rutilus</i>
	<i>Scardinius erythrophthalmus</i>
	<i>Silurus glanis</i>
	<i>Squalius cephalus</i>
	<i>Syngnathus abaster</i>
	<i>Zingel zingel</i>

Pic. 4: Dominance und Biomass distribution



Shannon-Index: 1.152

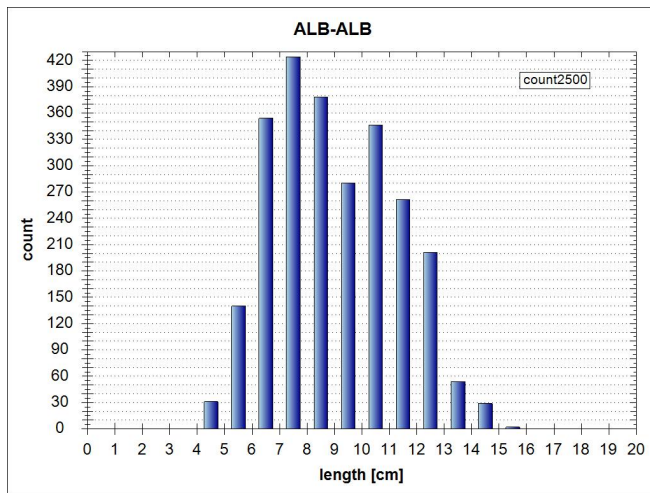
Equitability: 0.342

**Biometrics and catch rate**

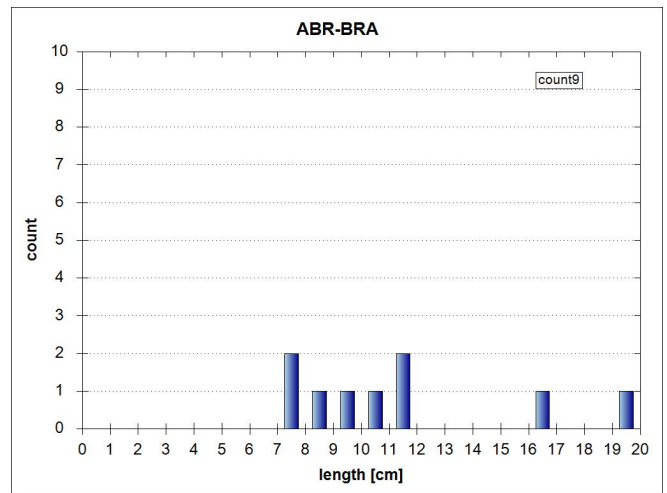
Table 6: biometrics of each species and catch specific parameters

Fish species	Lt [cm]		n	Statist. Method	Catch- Probability [%]	Catch-effectivity		
	Min	Max				Min	MW	Max
Asp	7.0	15.9	63.0	39		0.50	0.51	0.70
Barbel	5.0	12.8	56.0	17		0.50	0.50	0.50
Bighead goby	5.5	7.9	12.0	14		0.50	0.56	0.70
Bitterling	4.0	4.0	4.0	2		0.50	0.50	0.50
Black-striped pipefish	10.0	12.3	14.5	2		0.50	0.50	0.50
Bleak	4.0	8.7	15.5	2,500		0.50	0.50	0.70
Blue bream	7.5	7.7	8.0	5		0.50	0.50	0.50
Bream	7.5	11.1	19.0	9		0.50	0.50	0.50
Carp	8.5	13.3	18.5	5		0.50	0.50	0.50
Chinese sleeper	4.0	4.5	6.0	6		0.50	0.50	0.50
Chub	20.0	22.1	29.5	5		0.50	0.50	0.50
Ide	7.5	9.9	23.0	40		0.50	0.50	0.50
Kessler's gudgeon	6.0	7.5	9.5	6		0.50	0.50	0.50
Monkey goby	4.0	6.5	11.0	167		0.50	0.59	0.70
Mushroom goby	5.0	7.2	10.5	26		0.50	0.50	0.50
Perch	4.0	8.7	16.5	52		0.50	0.52	0.70
Pike	15.0	25.4	49.0	66		0.50	0.50	0.70
Prussian carp	7.5	13.7	31.5	26		0.50	0.50	0.50
Pumkinseed	3.0	7.3	12.0	23		0.50	0.50	0.50
Roach	5.0	7.4	12.0	54		0.50	0.50	0.50
Round goby	4.0	7.1	9.0	37		0.50	0.52	0.70
Rudd	5.5	9.4	18.0	21		0.50	0.50	0.50
Spined loach	8.0	8.8	10.0	8		0.50	0.50	0.50
Stone moroko	7.0	7.0	7.0	1		0.50	0.50	0.50
Tubenose goby	3.0	3.1	3.2	4		0.70	0.70	0.70
Ukrainian lamprey	11.5	12.5	13.5	5		0.50	0.50	0.50
Wels catfish	7.5	10.7	17.0	29		0.50	0.50	0.50
White bream	5.0	7.6	13.5	57		0.50	0.50	0.50
Zingel	14.5	14.5	14.5	1		0.50	0.50	0.50
29 species		Sum	3,227					

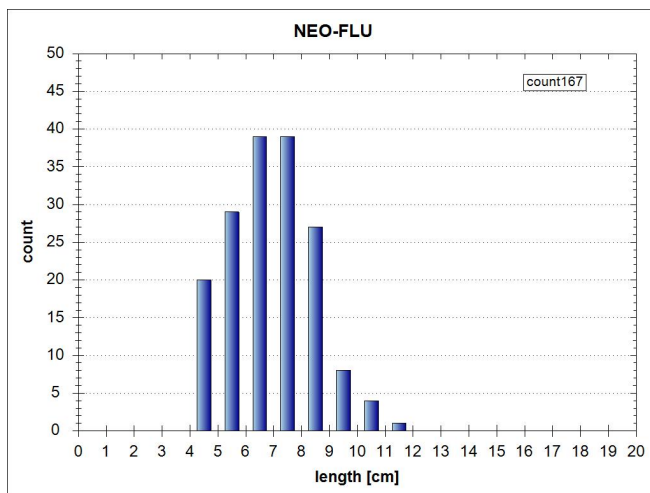
## Population structure of dominant species and subdominant species (total catch)



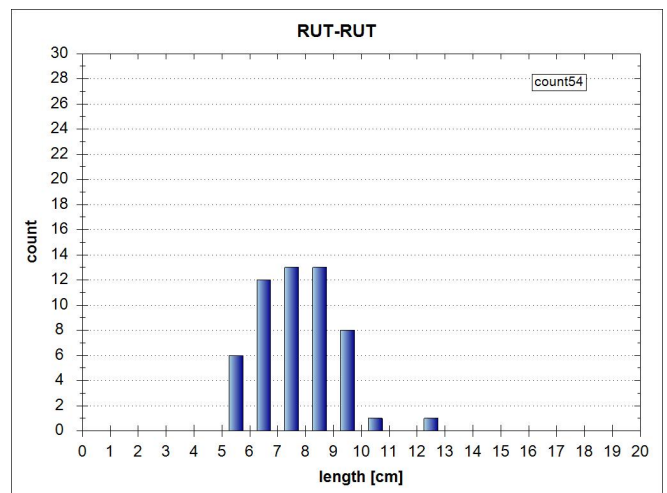
Bleak (*Alburnus alburnus*), 1



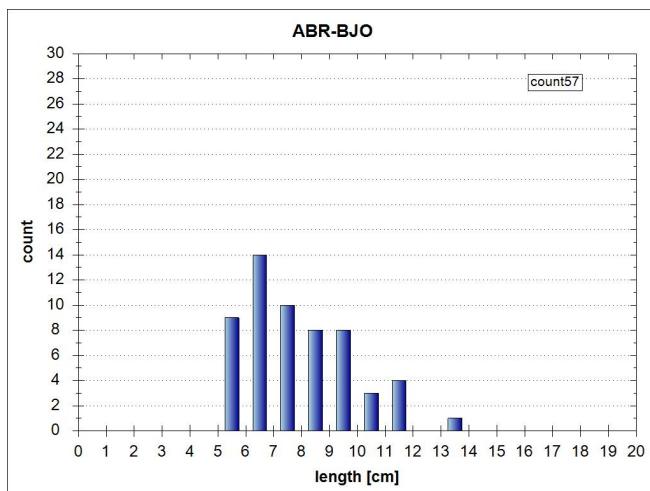
Bream (*Abramis brama*), 3



Monkey goby (*Neogobius fluviatilis*), 2

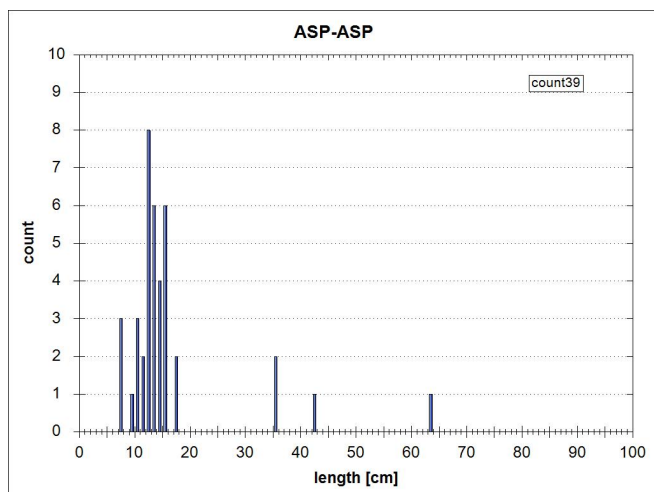
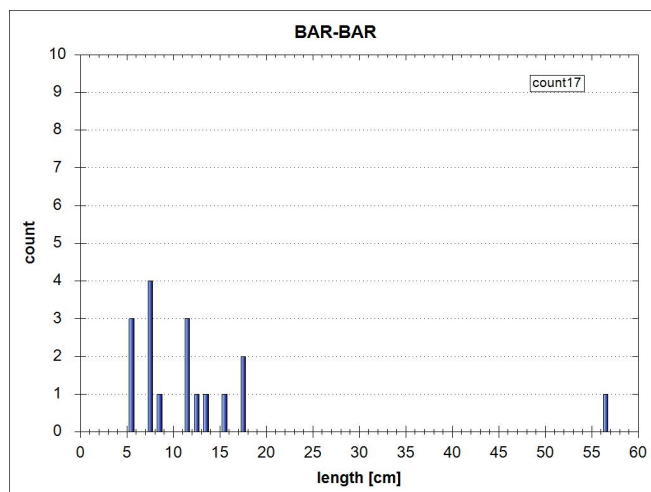
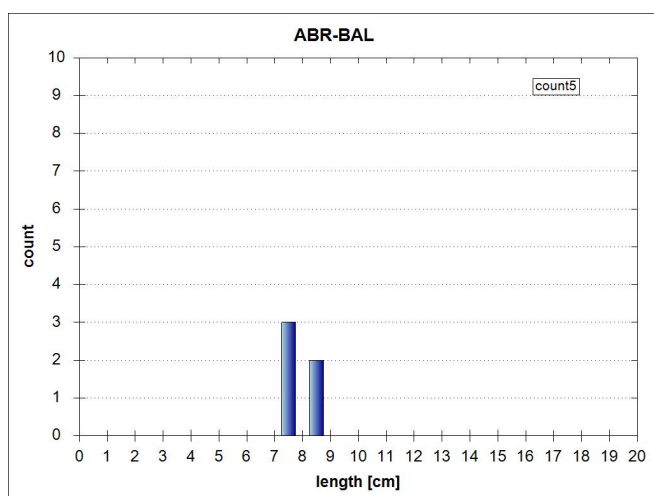
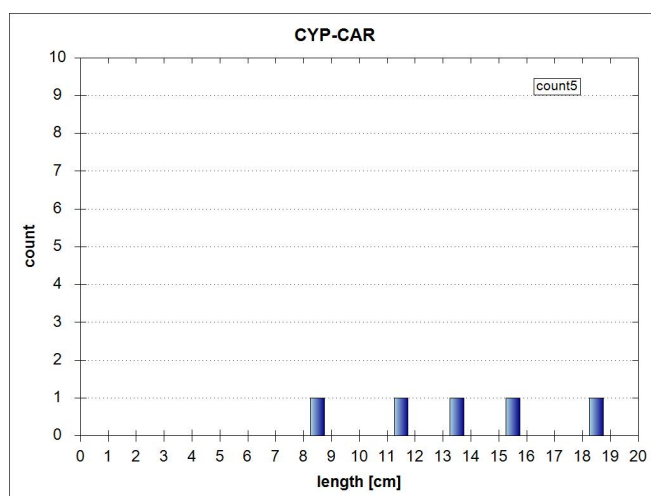
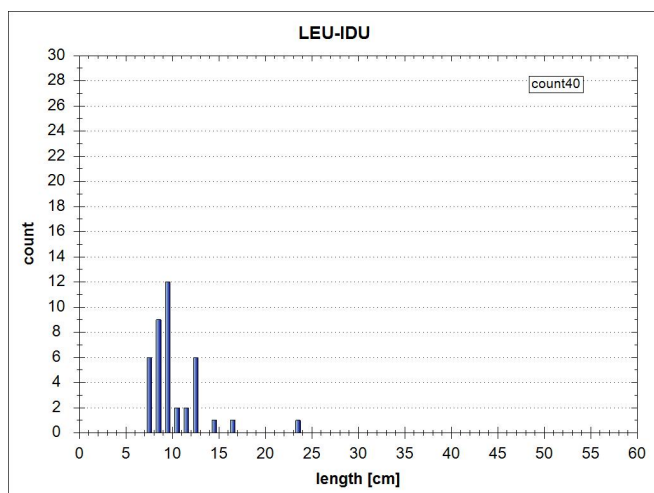
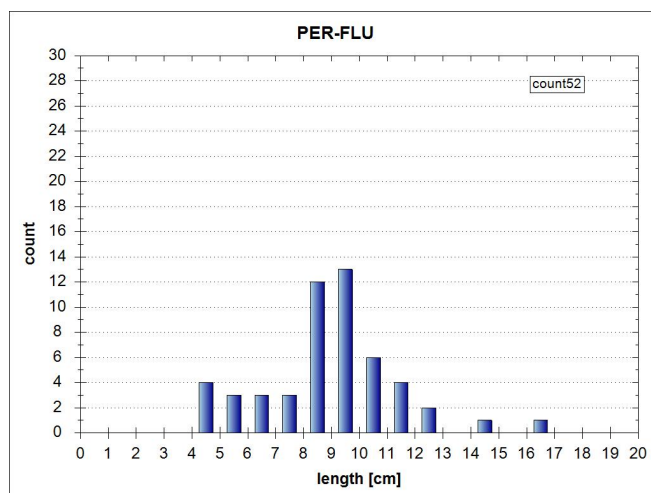


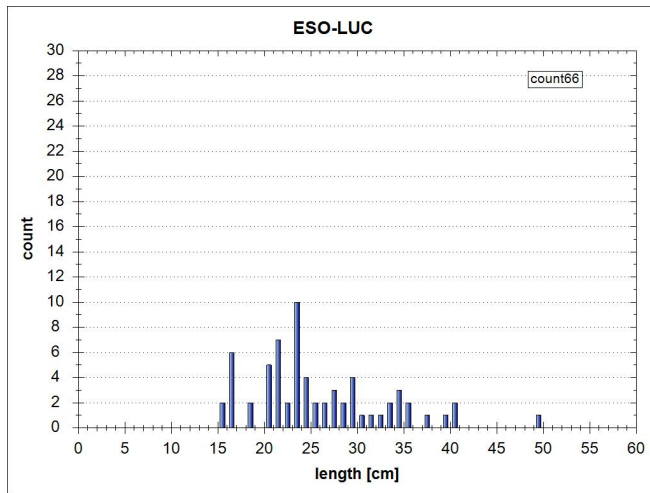
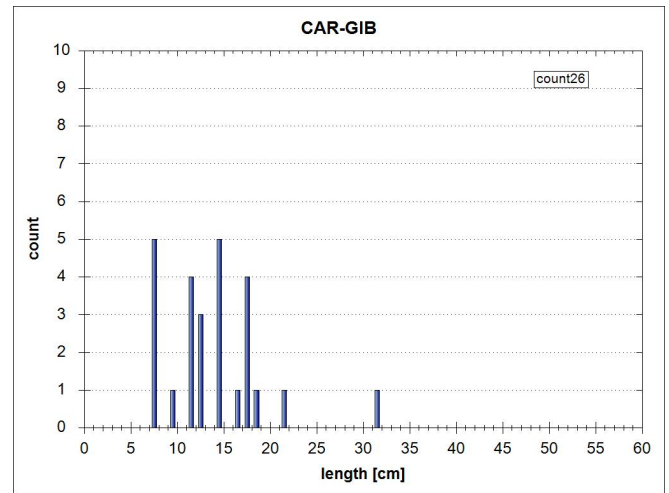
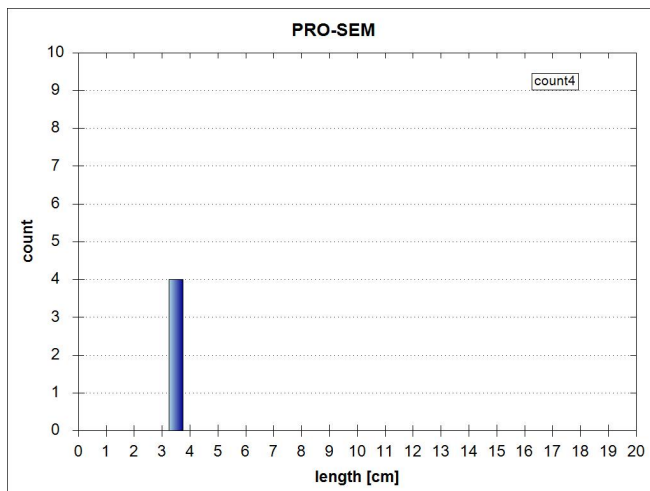
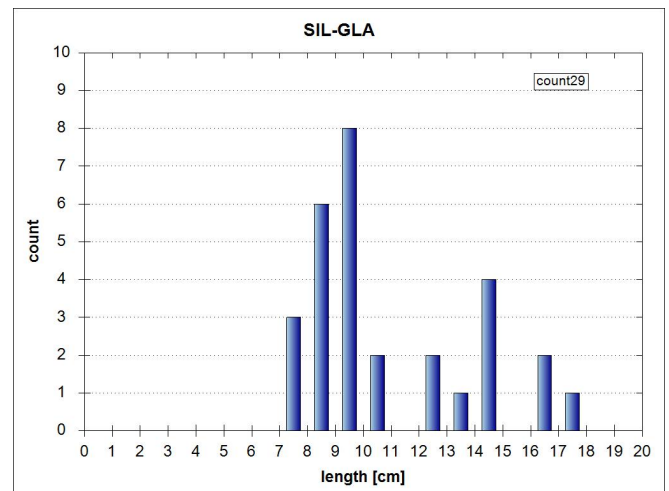
Roach (*Rutilus rutilus*), 3



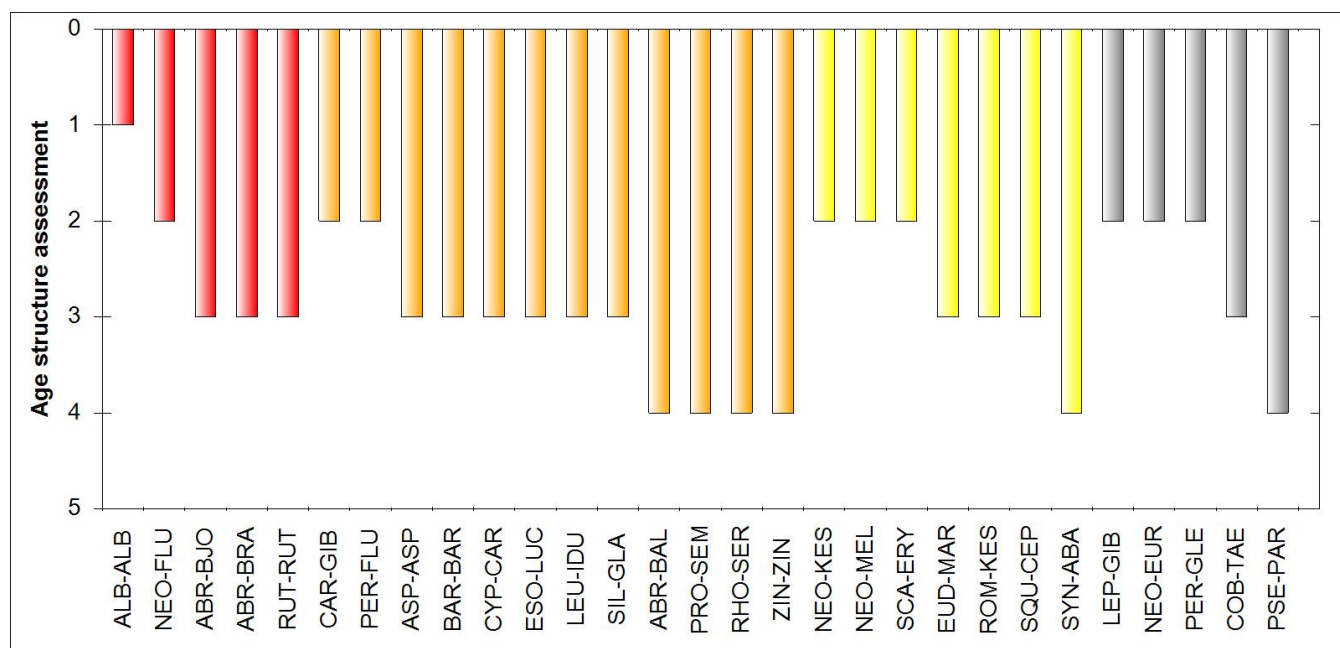
White bream (*Blicca bjoerkna*), 3

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

Asp (*Aspius aspius*), 3Barbel (*Barbus barbus*), 3Blue bream (*Abramis ballerus*), 4Carp (*Cyprinus carpio*), 3Ide (*Leuciscus idus*), 3Perch (*Perca fluviatilis*), 2

Pike (*Esox lucius*), 3Prussian carp (*Carassius gibelio*), 2Tubenose goby (*Proterorhinus semilunaris*), 4Wels catfish (*Silurus glanis*), 3

Pic. 6: Length-frequency diagram of subdominant species (n&gt;3), Aug. 2013



Pic. 7: Age structure of present species

**Comment on population structure of dominant and subdominant species**

- no comment -

**Fish ecological assessment (FIA, FISH INDEX AUSTRIA)**

Table 7: fish ecologic assessment, Danube, Downstream Kozloduy, BG\_JDS69, 8/24/2013

Rating					
Stock data	Abundance Ind/ha	Biomass kg/ha			ko-criterion biomass
	0.0	0.0		ko-crit	5
<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	7	5	71%	3.0	
Subdominant species	17	12	71%	2.0	
Rare species	32	7	22%	2.0	
				2.3	
<b>Ecological guilds</b>					
Flow	6	4	2	3.0	
Reproduction	7	5	2	3.0	
				3.0	
<b>Species diversity &amp; guilds overall</b>					<b>2.7</b>
<b>2. Dominance</b>	<b>Reference fish assemblage</b>	<b>actual (current)</b>	<b>Difference</b>		
<b>Fish region index</b>	6.5	0.0	6.5	ko-crit	5.0
<b>3. Population structure</b>	<b>Reference fish assemblage</b>	<b>actual (current)</b>		<b>Partial rating (1-5)</b>	
Dominant species	7	5		3.1	
Subdominant species	17	12		3.7	
					<b>3.3</b>
Fishindex Austria without active ko-criterion					3.39
<b>Biological quality element fish</b>		<b>FIA 5.00</b>	<b>Class 5</b>	<b>Bad</b>	

Date of Assessment:3/17/2014

Comment BAW-IGF

- no comment -

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

*Recommended improvements with priority ranking if possible;*