



Recreational fisheries in the Croatian bordering areas of the Sava and Danube rivers

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Introduction

- In some foreign country ecosystems, recreational fishing has almost replaced commercial fisheries and has become the only fish stock group user
- Undeniably proven - recreational fishing is the path towards greater socioeconomic benefit for the society in increasing profits and the development of tourism

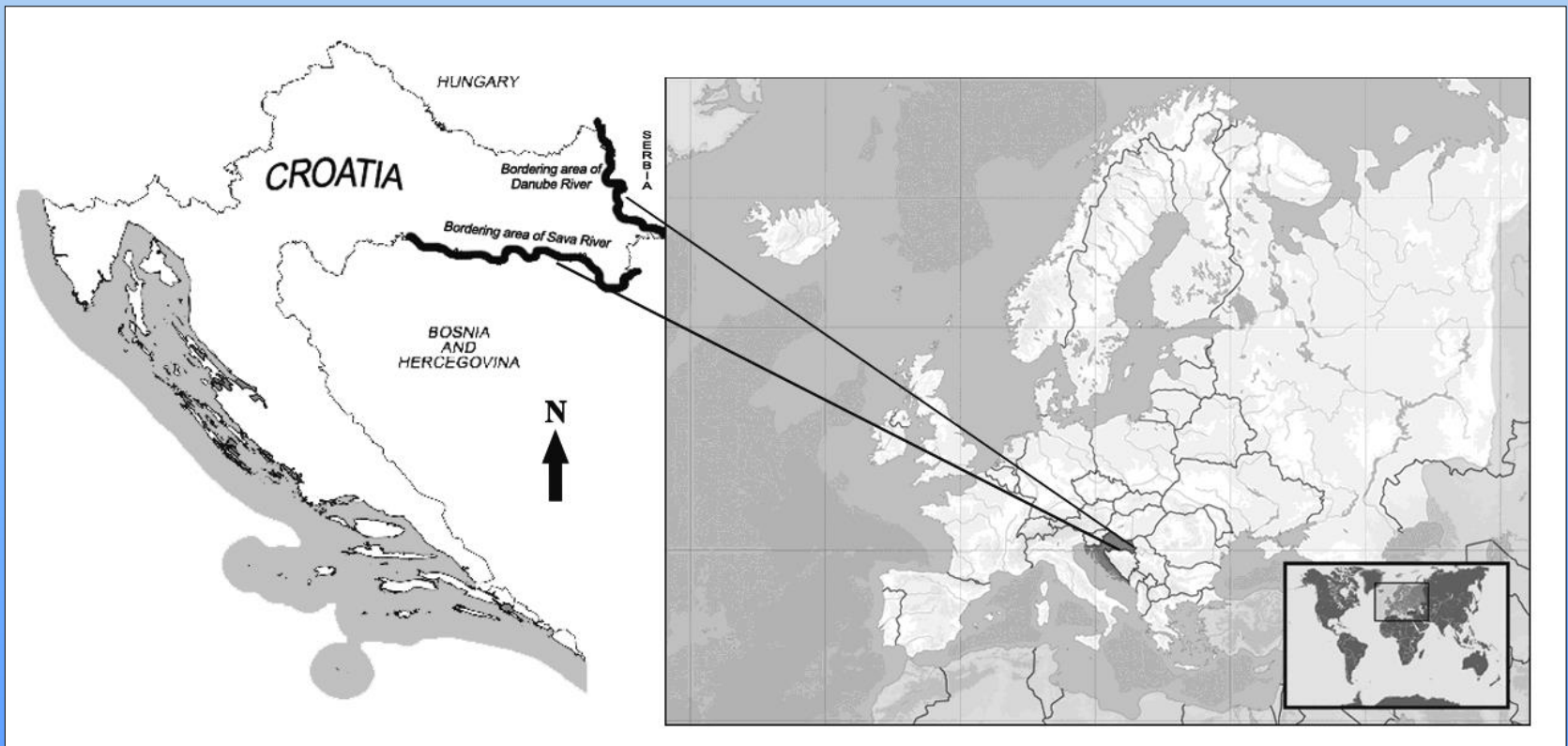


Introduction

- The lack of representative socioeconomic studies on the social importance of angling and the difficulty in monitoring highly diverse and disperse angling activities may contribute to the underestimation of the angling impacts
- Recreational fishermen
 - significant resource of the knowledge of spatial patterns of resource use and availability,
 - direct involvement in restoration projects
 - political leverage
 - grassroots support for research and conservation measures

Primary objective

- By including an investigation of the social and economic aspects of recreational fishing, the general profile and specific interest of the anglers fishing in the Croatian bordering areas of the Sava and Danube rivers, were characterized



Material and methods

- A total of 103 freshwater fish species inhabit the waters of Danube Basin - 14 of which have been introduced from other biogeographical areas (Mrakovčić *et al.* 2006)
- Cyprinidae - most represented fish family in the investigated area common carp (*Cyprinus carpio* L.), Prussian carp (*Carassius gibelio* - Bloch.), common bream (*Abramis brama* L.), silver bream (*Blicca bjoerkna* L.), etc.
- The total number of registered anglers in Croatia was 32337 (According to the data of the Croatian Sports Fishing Association for 2005.)
- In the surveyed area, the total number of registered recreational anglers was 9773, seniors (8797), disabled persons (549) and juniors (429)

- The survey included 383 recreational anglers (the members of a fishermen's society with a fishing license)
- In the fishing season of 2005 at different locations (e.g. fishing shops, fishing clubs, rivers, home and cafes) the recreational anglers were given a questionnaire of 48 questions.



- The questionnaire were based on:
 - the legal regulations of the Republic of Croatia
 - international scientific literature was consulted
 - professionals from the Faculty of Agriculture and Faculty of Philosophy, University of Zagreb.
 - Akvaplan Niva AS company, Norway
- Redundancy Analysis (RDA) with dummy variables using the CANOCO for Windows 4.5 software package



Results

Social part			
Nr.	Q.	A.	%
1.	Gender	Male	94
		Female	6
2.	Marital status	Single	16
		Married	78
		Widowed	6
3.	Education	No School	1
		Elementary school	9
		Technical school	19
		High School	52
		College	8
		University	11

Fisheries part

Nr.	Q.	A.	%
1.	Years of fishing experience	< 1	2
		1 - 5	4
		5 - 10	5
		> 10	89
2.	Have you passed the fishing examination?	Yes	97
		No	3
3.	Partners in fishing	Alone	32
		With a family member	25
		With a friend	60
4.	Average distance from home to a fishing location (km)	< 3	31
		3 - 10	30
		10 - 50	34
		> 50	5

Fisheries part

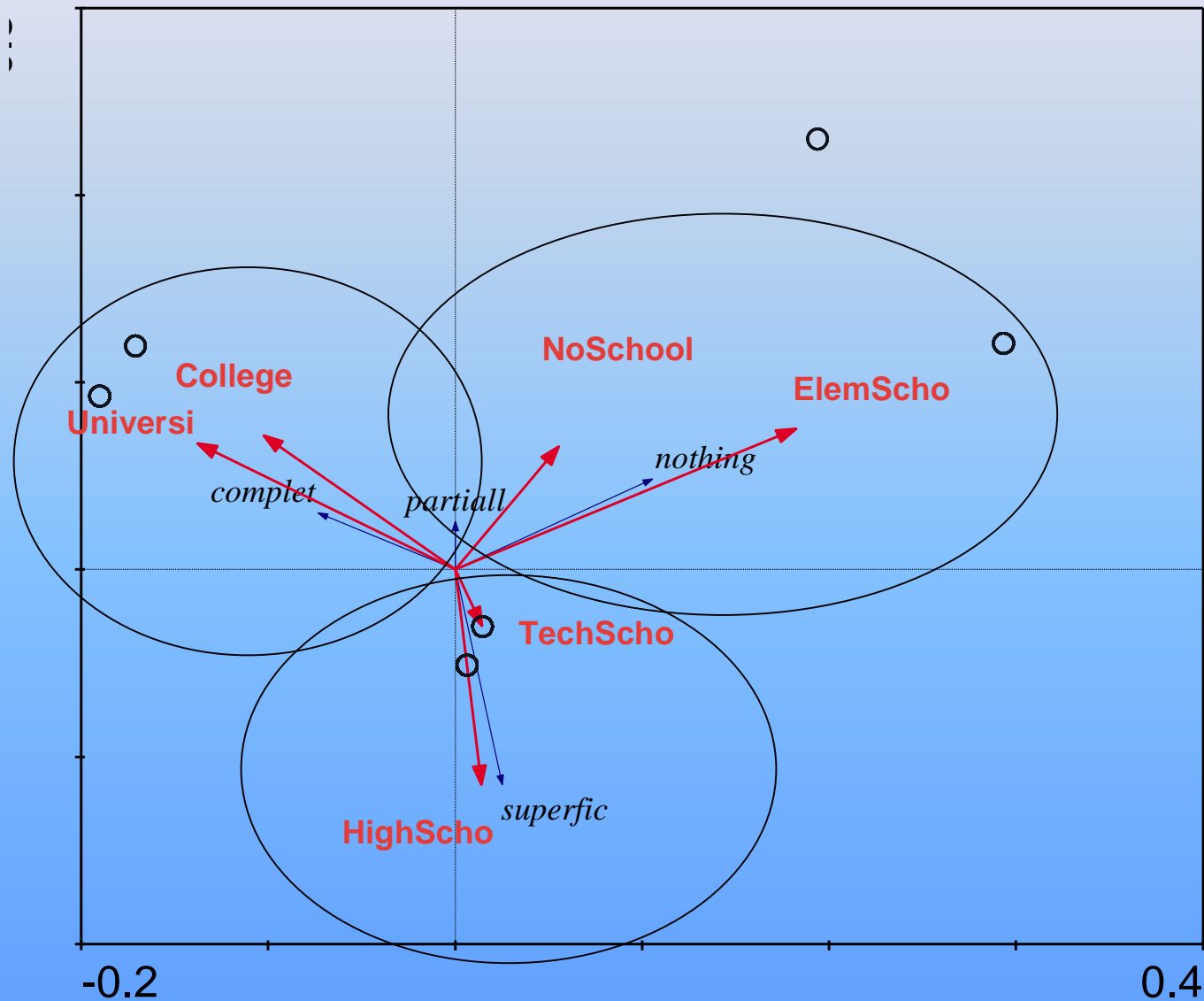
Nr.	Q.	A.	%
5.	Most frequent types of water in the fishing area	Flowing rivers	89
		Stagnant lakes	23
		Commercial fish farms	5
6.	Catch content of recreational anglers	Common carp	44
		Grass carp	8
		Catfish	29
		Pike	50
		Pikeperch	47
		Trout	1
		Prussian carp	46
		Largemouth bass	2
		Other	56

Fisheries part

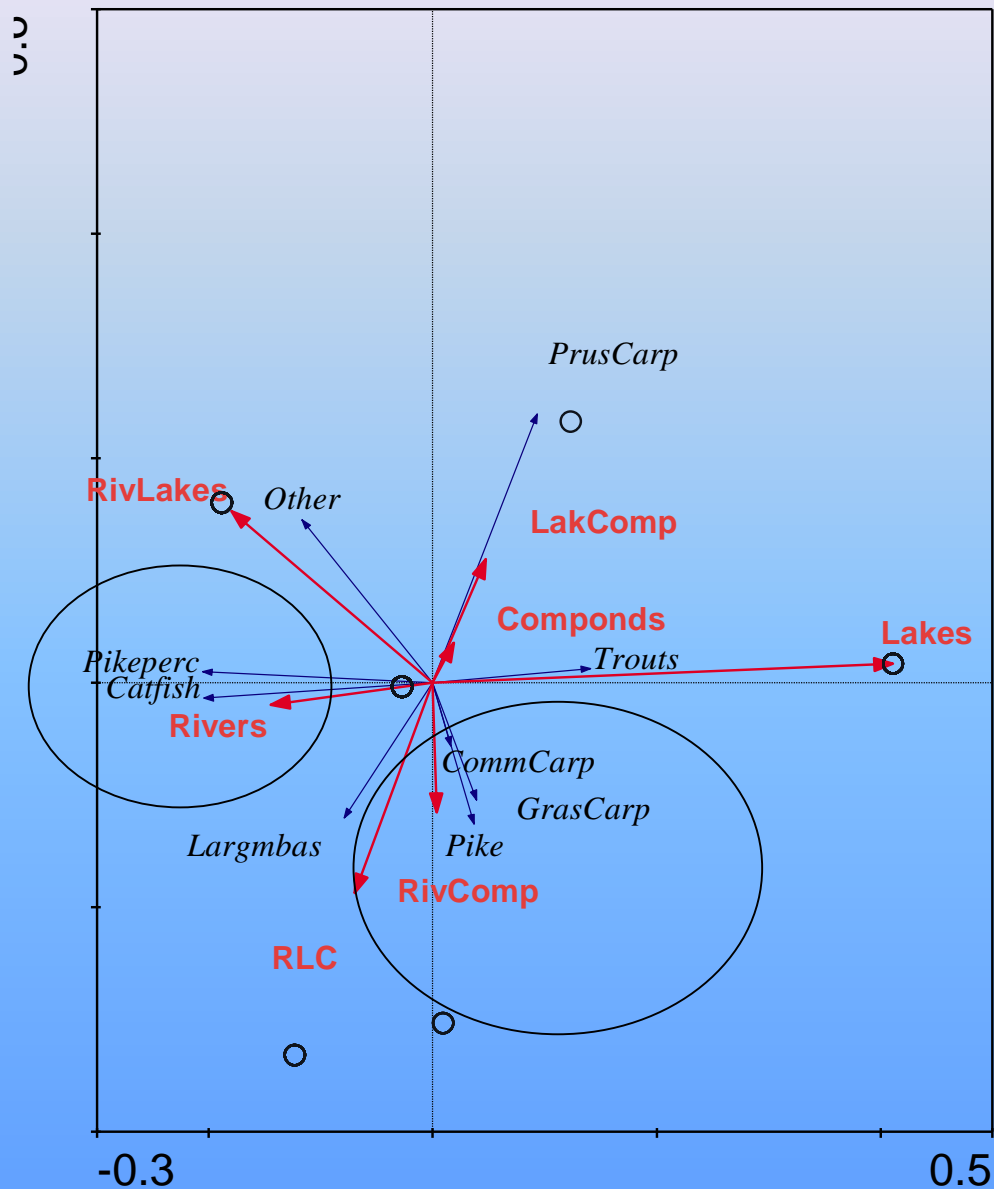
Nr.	Q.	A.	%
7.	Knowledge of the most recent (valid) legal regulations	Completely	35
		Partially	48
		Superficially	12
		Nothing	5
8.	Opinion on the price prescribed for a fishing license	Not too high	22
		Too high	75
		Too low	3
9.	What is to be done with the fish that is caught and kept	Eat all	42
		Eat only some of them	35
		Give to friends / relatives	31
		Let the fish caught	17

Economic aspects			HRK	%
1.	Estimate of annual expenses for fishing (HRK)	Annual expenses for the equipment	< 100	3
			100 - 300	13
			300 – 500	19
			500 - 1000	25
			> 1000	39
		Annual expenses for transportation and time spent in fishing	< 100	7
			100 - 300	13
			300 – 500	20
			500 - 1000	18
			> 1000	38
		Annual expenses for fishing license and membership fees	200 - 500	71
			500 - 1000	19
			> 1000	5

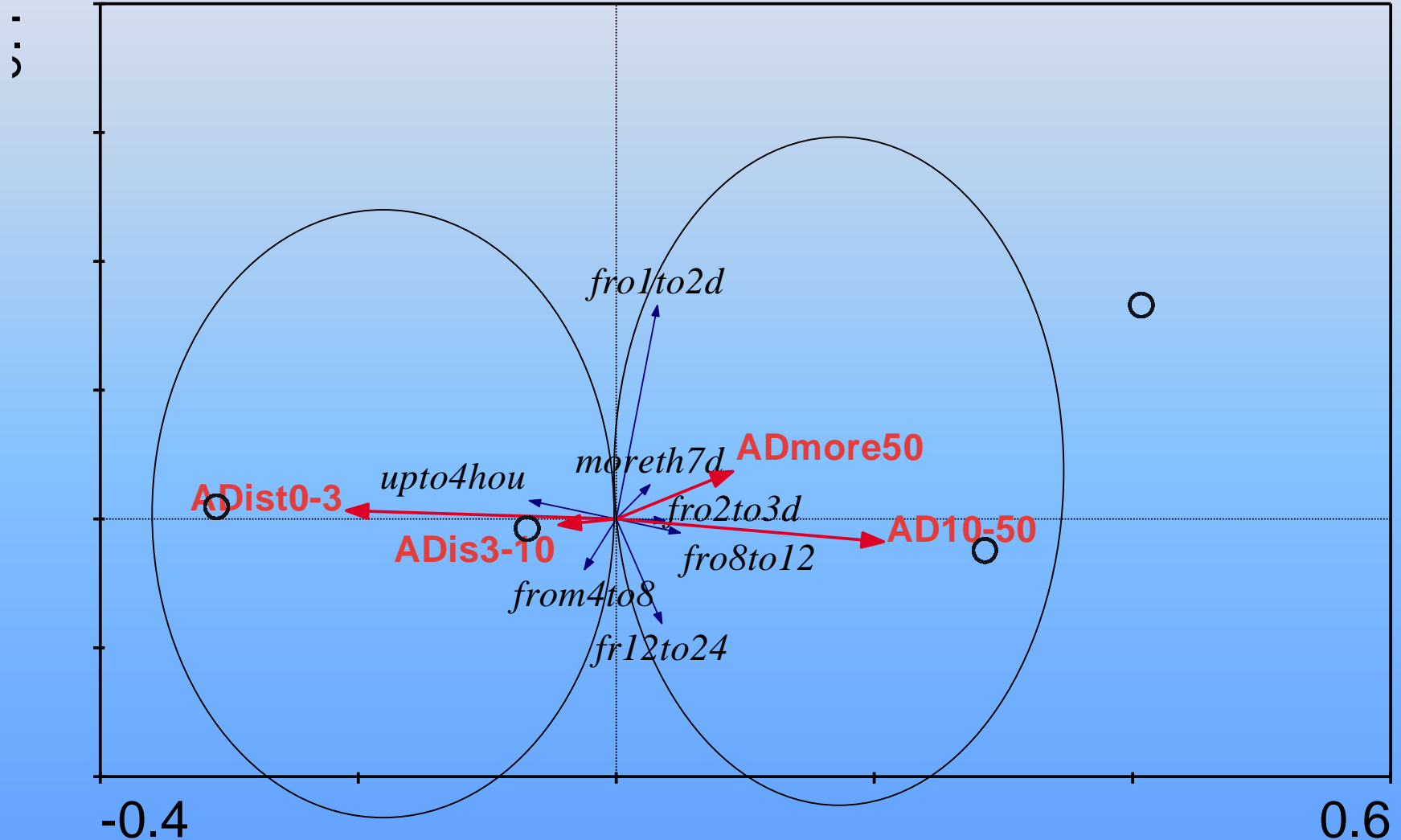
- Significant relationship between educational level and knowledge of legal regulative



- Significant relationship between dependence of fishing location and catch content of recreational fishermen



- Significant relationship between dependence of average distance from home to a fishing location (km) and average time spent in fishing from arrival to departure (hours, days)



Discussion and conclusions

- Anglers often consider a fishing trip to be satisfactory even if no fish is caught. (Falk, Graefe and Ditton, 1989)
- The key factors are contact with nature, social interaction and breaks from day-to-day routines for this type of evaluation.
- The basis for developing satisfying recreational fishing experiences provides understanding anglers motivations (Knopf 1983; Fedler 1984; Driver 1985; Graefe and Fedler 1986).

Discussion and conclusions

- The evaluation of fish stocks and especially the management of certain fishing areas make sense only when they are coordinated over the entire area, which further emphasizes the importance of monitoring.
- The joint management of aquatic resources is a prerequisite for maintaining freshwater fisheries

Discussion and conclusions

- Special attention should be given to the human dimension (Aas and Ditton 1998), in guiding both scientists and fisheries managers, whilst taking into account the biodiversity and sustainability.
- Survey shows that most of the anglers prefer fishing in the rivers.
- Strong correlation: between the anglers' fishing location and catch content; educational level and knowledge of legal regulative; dependence of average distance from home to a fishing location and average time spent in fishing from arrival to departure

Thank you
for your
attention

