NACEE

MODERN TECHNOLOGIES OF REPRODUCTION NATIVE FISH SPECIES

International scientific-practical conference

May 22, 2019.
Mukachevo, Ukraine

Network of Aquaculture Centers in Central-Eastern Europe (NACEE)
Institute of Fisheries of the National Academy of Agrarian Sciences of Ukraine

MODERN TECHNOLOGIES OF PROPAGATION AND RESTOCKING OF NATIVE FISH SPECIES

International Scientific and Practical Conference, May 22, 2019. Mukachevo, Ukraine

Kyiv – 2019

UDC 639.3.03(063)
M-77

Modern Technologies of Propagation and Restocking of Native Fish Species : International Scientific and Practical Conference, May 22, 2019 : book of abstracts. Mukachevo, Ukraine, 2019. 64 p.

Organizer – Network of Aquaculture Centers in Central-Eastern Europe (NACEE) (http://www.nacee.eu/ru) & Institute of Fisheries of the National Academy of Agrarian Sciences of Ukraine (http://if.org.ua).

ISBN 978-617-7457-83-0 ТОВ «СІК ГРУП Україна»

CONTENTS

Retrieved from http://lex.justice.md/viewdoc.php?action=view&view=doc&id=328088&lang=2.
3. *Krasnaya Kniga Moldavskoy SSR.* (1978). Kishinev: Kartya Moldovenyaske.
4. *Cartea Roşie a Republicii Moldova.* (2001). Chişinău: Î.E.P. Ştiinţa.
5. *Cartea Roşie a Republicii Moldova.* (2015). Chişinău: Î.E.P. Ştiinţa.
6. Alimov, I. A. (2013). Vyrashchivanie vyrezuba (*Rutilus frisii*) v rybovodnykh prudakh. *Rybovodstvo i rybnoe khozyaystvo, 10,* 26-30.

ASSESSMENT OF THE SIMILARITY DEGREE OF *GOBIIDAE* FOOD COMPOSITION FOR FORMING POLYCULTURE IN THE SHABOLATSKY ESTUARY

M. Burgaz, marinaburgaz14@gmail.com, Odesa State Environmental University
Одеський, Odesa

Shabolatsky estuary is located in the northwestern area of Black Sea and was formed as Dnistro river estuaries, which were separated by a sand bar from the sea. The estuary belongs to the type of semi-open, brackish-water estuaries-lagoons. For centuries, the Shabolatsky estuary served as a place for marine and freshwater fish and was traditionally used for ranching mariculture [1].

One of the most important components of the ichthyocomplex of the Shabolatsky estuary are gobiids represented by the two most widespread fish species − round goby *Neogobius melanostomus* and grass goby *Zosterisessor ophiocephalus* [1].

An analysis of the food relationships for gobies, one of the main objects of ranching mariculture in the Shabolat estuary, showed that the maximum similarity degree in the diet compositions of the grass goby and round goby was observed in autumn (SD − 33.2), the minimum − in spring (SD − 20.8) (Table 1) [2].

Table 1

Similarity degree of the diet composition of gobies from the Shabolatsky estuary in different seasons 2009−2012

Nutrition objects, in percentages by weight	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*
	Spring		Summer		Autumn		Average for the year	
Nereis diversicolor	8,4	–	7,3	6,6	1,3	1,5	7,2	1,7
N. sp.	4,6	–	4,1	–	–	–	4,2	–
Abra ovata	3,6	1,8	–	0,2	–	0,02	2,4	0,7
Mytilaster lineatus	1,0	1,1	–	0,5	–	0,03	0,4	0,3
Hydrobia sp.	1,3	–	–	0,2	–	0,1	0,8	0,3
Mysidae gen sp.	–	–	1,4	0,1	–	0,1	0,1	0,4
Idothea baltica	22,2	8,0	47,5	4,5	79,8	23,4	36,8	12,7

Continuation of the table 1

Nutrition objects, in percentages by weight	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*	*Zosterisessor ophiocephalus*	*Neogobius melanostomus*
	Spring		Summer		Autumn		Average for the year	
Sphaeroma serratum	7,0	53,4	2,0	15,3	–	26,3	5,3	37,1
Gammarus lacusta	35,5	0,2	18,2	11,1	8,4	6,6	27,8	4,8
Gammarus sp.	5,1	–	1,5	0,9	1,9	4,5	3,8	1,8
Palaemon adspersus	2,8	11,0	1,6	12,0	–	10,3	1,1	9,0
Pomatoschistus marmoratus	–	20,6	1,5	11,7	–	17,5	0,5	16,1
Zosterisessor ophiocephalus	1,0	–	9,5	–	–	–	2,7	–
Neogobius melanostomus	6,7	–	0,5	4,7	–	2,2	4,1	0,7
N. fluviatilis	0,6	–	0,5	21	–	9,5	0,3	8,3
SD	**20,8**		**29,3**		**33.2**		**31,2**	

In general, the similarity of the diets of these goby species from the Shabolatsky estuary is not great. They occupy close, but different food niches. Therefore, both species are quite suitable for forming polyculture for fish ranching [2].

REFERENCES

1. Burgaz, M. I. (2017). Raspredelenie, biologiya s sostoyanie populyatsii bychkov kruglyaka (*Neogobius melanostomus*) i travnika (*Zosterisessor ophiocephalus*) v Shabolatskom limane. *ScienceRise:Biological Science, 6(9),* 31-37.
2. Burhaz, M. I. (2018). Osoblyvosti formuvannia ikhtiotsenozu Shabolatskoho lymanu v umovakh antropohennoi transformatsii vodoimy. *Extended abstract of candidate's thesis.* Odesa.

ASSESSMENT OF THE DIET OVERLAP OF MULLETS (*MUGILIDAE*) FOR POLYCULTURE IN THE SHABOLATSKYI LAGOON

M. Burhaz, marinaburgaz14@gmail.com, Odesa State Environmental University, Odesa
P. Shekk, Shekk@ukr.net, Odesa State Environmental University, Odesa

Shabolatskyi (Budakskyi) lagoon is one of the water bodies of the north-western Black Sea region, which is characterized by high biological diversity and fish productivity.

The native ichthyofauna of the lagoon includes *Mugil cephalus* (Linnaeus, 1758), *Liza saliens* (Risso, 1810), and *Liza aurata* (Risso, 1810). In the 80s-90s of the 20th century, a *L. haematocheilus* population (Temminck & Schlegel, 1845) was formed in the Shabolatskyi estuary and is capable of self-reproducing [1].

An analysis of the trophic relationships of the main objects of fish ranching in the

Shabolatskyi estuary showed that the highest diet overlap was observed among mullets (*Mugilidae*) (Table 1) [2].

Table 1. **Average annual diet overlap indices for all length-age groups of mullets (*Mugilidae*) during the feeding period in 2012-2014**

Species		*Mugilidae*			
		L. saliens	***M. auratus / L. aurata***	***L. haematocheilus***	***M. cephalus***
Mugilidae	*L. saliens*	–	**72.3**	56.2	55.6
	M. auratus / L. aurata	**72.2**	–	58.7	58.5
	L. haematocheilus	56.2	58.7	–	**78.7**
	M. cephalus	55.6	58.5	**78.7**	–

The average annual diet overlap values of *L. haematocheilus* and *M. auratus* / *L. aurata* were 78.7, *L. saliens* and *M. cephalus* — 72.2. For mullets, the highest similarity was the qualitative composition of the diets for all species in the spring period [3]. In summer, the composition of food changed significantly that reduced the tension of trophic relationships. In autumn, the greatest similarity was observed for age-1+ *L. saliens* and *M. auratus / L.aurata* (diet overlap index – 74.5), age-1+ and age-2+ of *L. haematocheilus* and *M. cephalus* (diet overlap indexes – 84.2 and 85.0, respectively). At the same time, the diets of *L. haematocheilus* and *M. auratus / L. aurata* differed significantly from *L. haematocheilus* and *M. cephalus*. If the majority of the diets of the first fishes were animal prey, detritus and plant components prevailed in the latter. Trophic relationships among all mullets foraging in the Shabolatskyi lagoon were quite tense in recent years, which largely affected their growth rates and the weight of table fish. This fact must be taken into account in the directed formation of fish ichthyocenosis in the lagoon, in order to organize fish ranching.

In the Shabolatskyi lagoon, it is advisable to introduce fish ranching practices of the controlled cultivation of mullets in cages and specially fenced areas of the lagoon. Also, it is necessary to pay serious attention to the development of active methods of harvesting commercial fish during free fattening [4].

REFERENCES

1. Shekk, P. V., & Burgaz, M. I. (2016). Ikhtiofauna Shabolatskogo limana. *Mezhdunarodnaya assotsiatsiya khraniteley reki Eco-TIRAS. Sbornik nauchnykh statey, Akademiku L.S.Bergu -140 let*, 576-580.
2. Shekk, P. V., & Burgaz, M. I. (2017). Kharakteristika pitaniya kefalevykh ryb v Shabolatskom limane. *ScienceRise:Biological Science, 4(7),* 21-26.
3. Burhaz, M. I. (2018). Osoblyvosti formuvannia ikhtiotsenozu Shabolatskoho lymanu v umovakh antropohennoi transformatsii vodoimy. *Candidate's thesis.* Odesa: Odesa State Environmental University.
4. Shekk, P. V., & Burgaz, M. I. (2017). Sovremennaya strategiya pastbishchnoy marikul'tury v solonovatovodnykh limanakh severo-zapadnogo Prichernomor'ya. *Aktual'nye nauchnye issledovaniya v sovremennom mire, 3(23),* 22-31.