

<p><b>Recent Outcomes of the Shellfish Aquaculture Demonstrative Center (S-ADC)</b> (Magda-Ioana Nenciu, Victor Niță, Houssam Hamza)</p>	<p>“Cercetări Marine” Issue no. 50 Pages 192 - 197</p>	<p>2020</p>
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## **Short communication: RECENT OUTCOMES OF THE SHELLFISH AQUACULTURE DEMONSTRATIVE CENTER (S-ADC)**

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### **ABSTRACT**

Since 2017, the Shellfish Aquaculture Demonstrative Center (S-ADC), established under the coordination of the General Fisheries Commission for the Mediterranean (GFCM) within NIMRD “Grigore Antipa”, has been acting as a regional hub able to respond to Black Sea countries’ needs and expectations for aquaculture development, raising awareness at every level on the shellfish aquaculture potential. So far, three training courses have been performed in the frame of the S-ADC, in 2018, 2019 and 2020. During 13-16 April 2020, due to the COVID-19 confinement, the Shellfish Aquaculture Demonstrative Center team in Constanta launched the "ADC-Online: Free online courses on techniques and technologies in aquaculture". More than 1,500 persons participated in the first training by ADC Online, according to GFCM statistics. Another major outcome of the S-ADC was the settlement of legislative drawbacks that prevented both the cultivation and the harvesting of bivalves from the natural environment in Romania, namely the microbiological classification of the Black Sea waters, as required by Regulation (EC) no. 627/2019. NIMRD elaborated, thus, within S-ADC, "*The documentary, shoreline and hydrodynamics survey in order to establish and microbiologically classify the areas of production and relaying of live bivalve mollusks in the Romanian Black Sea sector as per Regulation (EC) no. 627/2019*", which was made available to the National Sanitary-Veterinary and Food Safety Authority, to effectively start the sampling procedures and carry out the microbiological classification. NIMRD, through the S-ADC, performs sustained efforts to solve another issue hindering the development of aquaculture in Romania, namely the lack of an adequate legislative framework, which will allow the concession of the water (Black Sea surface), in order to locate the aquaculture facilities.

**Key-Words:** training, ADC online, shoreline survey, microbiological classification, legislative framework

## AIMS AND BACKGROUND

Currently, shellfish aquaculture is not developed to its full potential in Romania due to, on the one hand, environmental constraints, and, on the other hand, an unclear legislative framework (Niță et al., 2018). In this context, the Shellfish Aquaculture Demonstrative Center (S-ADC) in the Black Sea is the outcome of the FAO-GFCM Bucharest (2016) and Sofia (2018) declarations to enhance the regional cooperation in the sector, marked by a strong political commitment to increase collaboration with a view to promoting the rational exploitation of marine living resources, sustainable development of aquaculture and mitigation of threats marine environment and vulnerable species are facing (Niță et al., 2019b). Since its establishment in 2017, the Shellfish Aquaculture Demonstrative Center (S-ADC), under the coordination of the General Fisheries Commission for the Mediterranean (GFCM) within NIMRD “Grigore Antipa”, has been acting as a regional hub able to respond to Black Sea countries’ needs and expectations for aquaculture development, raising awareness at every level on the shellfish aquaculture potential.

## EXPERIMENTAL

The S-ADC’s working methodology is based on two directions:

- 1) Training modules to provide scientific knowledge, hands-on practical experience and facilitate technology transfer, showcase different shellfish aquaculture production technologies, well-established systems and species;
- 2) Foster the development of shellfish aquaculture both at regional and national level, by contributing to the settlement of legislative and administrative drawbacks.

## RESULTS AND DISCUSSION

The training and capacity building effort was originally operated in Romania during the first course dedicated to mussel farming (Constanța, 14-28 September 2018), focusing on mussel production technologies (Niță et al., 2018). Subsequently, in 2019, the training programme developed during 6-10 May, in Constanța, was dedicated to shellfish pathologies and monitoring, by acquiring knowledge on bacterial contamination and early diagnosis. The course comprised both theoretical and practical modules (sample collection, laboratory analysis, field visits) (Niță & Nenciu, 2019a).

During **13-16 April 2020**, due to the COVID-19 confinement, the Shellfish Aquaculture Demonstrative Center team in Constanta launched the **"ADC-Online: Free online courses on techniques and technologies in aquaculture"** (Fig. 1). Researchers provided a live online training, under the coordination of GFCM. Mr. Houssam Hamza, Aquaculture Officer, and the S-

ADC Executive Director, Dr. Victor Niță, opened the training, followed by live presentations by NIMRD scientists. In order to make this technically possible, the GFCM Secretariat extended its Extranet with teleconferencing systems and streaming services. More than 1,500 persons participated to the first training by S-ADC online (GFCM statistics).

The programme of the online training was the following:

- 13 April 2020: Dr. Victor Niță: Demonstrative Center for Shellfish Aquaculture in the Black Sea
- 13 April 2020: Dr. Valeria Abaza: Basic Bivalve Biology in Relation to Pathology
- 14 April 2020: Dr. Daniela Mariana Roșioru: Pathology of Shellfish and Impact on Mussels Quality
- 15 April 2020: PhD app. Oana Vlas: Phytoplankton Communities and Algal Blooms in the Romanian Black Sea
- 16 April 2020: Dr. Simion Nicolaev: Black Sea Aquaculture in Maritime Spatial Planning



**Fig. 1.** Live Online Training on Shellfish Pathologies, 13-16 April 2020, Constanța, Romania (photos: Victor Niță & Magda Nenciu).

Another recent outcome of the S-ADC was the settlement of legislative drawbacks that prevented both the cultivation and the harvesting of bivalves from the natural environment in Romania, namely the microbiological classification of the Black Sea waters, as required by Regulation (EC) no. 627/2019 (Nenciu et al., 2020).

Following the numerous interventions made by NIMRD (through S-ADC) since June 2019, with the support of the GFCM, at the National Sanitary-Veterinary and Food Safety Authority, i.e. the Competent Authority, the National Agency for Fisheries and Aquaculture, Ministry of Environment, Water and Forests, as well as the Institute of Diagnosis and Animal Health, the *"Inter-ministerial agreement for the classification of production and relaying areas of live bivalve mollusks"* was signed and actual work in this direction started.

NIMRD elaborated, thus, within the S-ADC, during January-March 2020, *"The documentary, shoreline and hydrodynamics survey in order to*

*establish and microbiologically classify the areas of production and relaying of live bivalve mollusks in the Romanian Black Sea sector as per Regulation (EC) no. 627/2019"*, which was made available to the Competent Authority, to effectively start the sampling procedures.

Through the "Shoreline Survey", NIMRD's S-ADC experts confirmed in the field the presence of the potential sources of contamination identified in the Documentary Survey (Fig. 2).



**Fig. 2.** Constanța South Waste Water Treatment Plant discharging in the Constanța Port, Berths 84 - 86 (left); Gura Buhaz outflow, Ecomaster Ecological Services Waste Water Treatment Plant discharge point (right)  
(photos: Magda Nenciu).

On 06.03.2020, in Constanța, the representatives of NIMRD "Grigore Antipa" (Dr. Eng. Simion Nicolaev, General Director, and Dr. Victor Niță, Head of the Marine Living Resources Department), of the Romanian National Sanitary-Veterinary and Food Safety Authority (ANSVSA) and the Sanitary-Veterinary Directorates Constanța and Tulcea, of the National Agency for Fisheries and Aquaculture (NAFA), of the Ministry of Environment, Waters and Forests (MEWF), as well as of fishermen's associations, met at the headquarters of the Constanța Sanitary-Veterinary Directorate, in order to effectively start the microbiological classification of the areas of production and relaying of live bivalve mollusks from the Romanian Black Sea sector. During this meeting, the contamination sources identified in the "*The documentary, shoreline and hydrodynamics survey in order to establish and microbiologically classify the areas of production and relaying of live bivalve mollusks in the Romanian Black Sea sector as per Regulation (EC) no. 627/2019*", elaborated by NIMRD Constanța, were inventoried, the interest areas for classification were debated and positioned, and the microbiological sampling network and schedule were set (Fig. 3).



**Fig. 3.** NIMRD's S-ADC experts participated during 2019-2020 in several meetings for the classification of production and relaying areas of live bivalve mollusks in Romania (*photos: Victor Niță & Magda Nenciu*).

In September 2020, the microbiological survey was completed. After analyzing the results of the samples collected and corroborating them with the shoreline survey carried out by NIMRD, the National Sanitary-Veterinary and Food Safety Authority performed the microbiological classification of all three production and relaying areas of live bivalve mollusks in the Romanian sector (namely Chituc - Perișor, Mamaia Bay and Agigea - Mangalia) in **class A**. As such, shellfish harvested or reared in these areas can be marketed for human consumption without further purification required.

## CONCLUSIONS

The S-ADC has been continuing to develop the training programmes, despite the difficult conditions caused by the COVID-19 pandemics. Moreover, a significant outcome of the S-ADC was the start of the microbiological classification procedure of the Black Sea waters, which will stimulate both the cultivation and the harvesting of bivalves from the natural environment in Romania. At present, NIMRD, through the S-ADC, performs sustained efforts to the Competent Authorities (Ministry of Environment, Waters and Forests) to solve another issue hindering the development of aquaculture in Romania, namely the lack of the legislative framework, which will allow the concession of the water (Black Sea surface), in order to locate the aquaculture facilities.

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## REFERENCES

- Nenciu M.I., Niță V., Țoțoiu A., Hamza H. (2020), Framework for Setting-Up a Classification and Monitoring Program for Shellfish at the Romanian Black Sea Coast. *J Environ Prot Ecol.* **21** (1): 184-193.
- Niță V., Theodorou J., Nicolaev S., Maximov V., Nenciu M.I. (2018), Capacity Building and Expert Training in the Frame of the Constanta Shellfish Aquaculture Demonstrative Center. *Cercetări Marine/Recherches Marines:* 48: 92-99.
- Niță V., Nenciu M.I., Nicolaev S., Hamza H. (2019a), Shellfish Pathology - Key Factor in Mussel Farming. A Black Sea Tailored Approach within the Shellfish Aquaculture Demonstrative Center (S-ADC), *Cercetări Marine/Recherches Marines:* **49**: 92-101.
- Niță V., Theodorou J., Nicolaev S., Nenciu M.I. (2019b), Advancing Shellfish Aquaculture as a Sustainable Food Procurement Option in Emerging Black Sea Riparian Countries: Romania Country Report. *Scientific Papers. Series D. Animal Science:* LXII (2): 364-370.