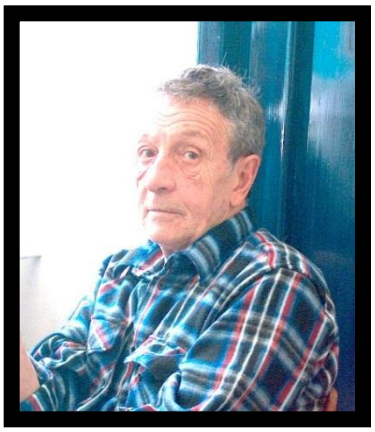
Obituary

Biologist ADRIAN TELEMBICI
(September 15, 1939 - October 22, 2010)



Adrian Telembici was born in Balatina, in the Republic of Moldova, on the 15th of September 1939.

He graduated from the "Alexandru I. Cuza" University of Iaşi, the Faculty of Biology - Geography, Department of Biology-Zoology, full-time courses, class of 1964, with an average of 9.19 and the diploma exam with an average of 9.75.

After graduation and military service, he was assigned as a biology teacher at the Costineşti Elementary School, Constanța County, where he worked from November 1964 - January 1965.

He began his scientific research at the Marine Research Station "Prof. I. Borcea" in Agigea (Constanța County) as a junior biologist in the Laboratory of Animal Physiology, following the argument of his diploma work and by his own choice.

Within the Station, he was promoted biologist (1966) and senior biologist (1970).

Starting with March 1, 1970, he was transfered to the newly established Romanian Marine Research Institute (R.M.R.I.), resulting as a follow up of the merge of several preexisting marine research institutions, among which the above mentioned Station, as a biologist, in the Animal Biology Laboratory. In 1970 he was also promoted, after having passed an exam, as scientific researcher. Subsequently, he was promoted main scientific researcher III (1975) and M.S.R. II (1992) within the "Marine Living Resources" Department, which he led until 2005, and he retired in 2006.

His research activity started at the Marine Research Station "Prof. I. Borcea" after a 2 month specialization at the Plant and Animal Physiology Department within the Faculty of Biology-Geography, Iaşi, under the coordination of prof. Nicolae Gavrilescu.

In 1965, along with the above mentioned coordinator and the colleagues V. Crăciun and I. Neacşu, he performed and carried out hydrochemistry analyses, the method for measuring the irrelugar surfaces of small submerged bodies with the view to determining the quantity of naturally fixed bioderm; method for the experimental separation of the photosynthesis-breathing activity in the marine planktonic complex; determination of the photosynthesis and breathing rates in the marine complex depending on the reference season and temperature regime; work techniques used in marine biochemistry-physiology laboratories, sometimes adapting, with original contributions, the classical methods used both for the determination of hydrochemical parameters (analysis of the macro and micro elements in marine water) and the analysis of terrestrial organisms (methods for determining the energetic metabolism, breathing role enzymes, macro and microelements in the tissues, Krebs cycle compounds, proteins, lipids, glucides and vitamins); analysis of the macroion dynamics (Na; K; Ca^2; Mg^2) in mussel haemolymph under various salinity conditions.

Between 1967-1970, he conducted field research, participating in expeditions in the Black Sea, as well as in the laboratory, on the following: variations in the levels of ionic relations in marine waters of the Sulina - Vama Veche sector, to the 40 m isobath; dynamics of the (Na, K, Ca^2, Mg^2) macroions in mussel tissue under varying conditions of salinity and ionic relations; mussel tissue hydremia at varying salinity; content of glycogen and glucose of mussel tissue under different conditions of salinity; the activity of enzymes with respiratory role (carboanhydrasis and catalasis) in mussel tissue under different conditions of salinity; vitamins A, C and D content in mussel tissue under different conditions of salinity, temperature and oxygenation of seawater; succin-dehydrogenasis activity in mussels subjected to variations of salinity; pyruvic and citric acid in mussel tissue under different conditions of salinity;

hydremia and macroion cotent in polichaet species from Lake Belona - Eforie North; influence of variations in salinity and ionic ratios on the survival, hydremia and macroion content of three polichaet species in the Black Sea; hydremia and macroion content in the tissue of three Gobiidae species of the Black Sea.

With the view to professional specialization, he attended the international course organized under the auspices of the International Commission for the Scientific Exploration of the Mediterranean Sea (C.I.E.S.M.) and the Mediterranean Association of Marine Biology and Oceanography (M.A.M.B.O.) by Dr. M.C. Băcescu and Prof. E.A. Pora, in Agigea, in the summer of 1968, for a month.

In 1970, he passed the exam for PhD application, no attendance, at the "Alexandru I. Cuza" University Iași, specializing in animal physiology, under the scientific coordination of Prof. Dr. Petre Jitariu, with the initial theme "*The Influence of the Microelements Cu^{2}, Zn^{2}, Mn^{2} and Fe^{2} $^{-}$ ^{3} on the Metabolism of Some Economically Significant Bivalve Mollusks in the Black Sea*".

In Agigea, A. Telembici formed and specialized in hydrochemistry, ecophyisiology and marine biochemistry.

Within R.M.R.I., between 1970-2006, he contributed to numerous studies and research on assignments contracted with different beneficiaries.

Thus, during 1970-1972, he worked in the research assignments "*Establishing the Stocks and Recovery Rate of Algae, Mussels, Mya arenaria, Shrimps with Industrial Value*" and "*Establishing the Conditions for the Installation of Marine Epibiosis on Vessel Hulls and Ways to Achieve New Types of Antifouling Paints*" (coordinated by Dr. A. Petranu, Dr. M.T. Gomoiu, Dr. G.I. Muller); here, he took responsibility of 1-2 objectives and 2-4 research phases, with annual reports; the scientific issues addressed were related to: mapping the natural *Mya arenaria* populations in the Mamaia-Portiţa sector, between the 1-20 m isobaths; biotechnical characteristics, basic biochemical composition of local exploitable natural populations of invertebrates of the Sulina - Vama-Veche sector (rock and deep water mussels, *Mya arenaria*, *Cardium edule* and *Crangon crangon*) and the seasonal dynamics of this composition, the natural annual sexual cycle of exploitable indigenous invertebrates (mussels, *Mya arenaria*, *Cardium edule* and *Crangon crangon*) and the influence of hydrobiological factors on these cycles; the influence of suspensions and polluting factors (heavy metals, detergents) on the survival and development of gonads in the rock and deep water mussels harvested from existing natural populations in the Constanţa-Mangalia sector; spontaneous spawn laying in mussels and *Mya arenaria* under laboratory and controlled basins conditions; fertilization of the sexual elements and larval stage evolution up to fixation (for mussels) or deposition (*Mya arenaria*); growth rate for mussel juveniles (rock and deep water) under natural and controlled basins conditions; establishing in the laboratory the lethal concentrations of toxic metal ions (F^{-}, Pb^{2}, Cu^{2}, Hg^{2}, Zn^{2}, CO_2) in the antivegetative paints on the nektonic larval and pre-fixating stages of mussels, balanus, *Mytilaster*, *Membranipora* sp., *Merceriella* sp., components of the marine fouling deposited on vessel hulls.

Also, between 1970-1972 he held the predoctoral exams. He performed a specializing internship in France, at the Banyuls Sur Mer Marine Research Station, under the guidance of Prof. P. Drache, between July and September 1972, based on a scholarship granted by the French Ministry of Foreign Affairs. The purpose of the specialization was the information/documentation on invertebrate cultures in France and establishing experimentally the possibilities of acclimatization of new valuable species in the Black Sea. During this internship, he documented bibliographically on methods of controlled breeding and rearing of useful marine invertebrates, on the ecophysiology, ethology, metabolism and pathology of invertebrate species with eurithermic and eurihaline qualities, allegedly suitable for acclimatization in the Black Sea.

At the end of the internship, he brought into the country for acclimatization in the Black Sea the first unicellular algae sources with particular value in feeding bivalve larvae (*Isochrysis galbana, Micromonas pusilla, Tetraselmis suecica, Aureliella marina*) and the first batch of Portuguese oysters and *Tapes decussatus*.

During 1973-1977, he led the assignment "*Establishing the Possibilities of Controlled Rearing of Indigenous Invertebrates and Acclimatization of New Species*", with four and five objectives,

respectively, a year (in 1973 to 1976 and 1977, respectively), addressing: marine invertebrate biology study of rearing indigenous species (mussels, *Mya arenaria* and shrimps belonging to the genus *Palaemon*), focusing on reproductive issues and controlled growth; laboratory experiments to establish the methods of cultivation of microphyte species of special trophic value, methods for obtaining the necessary food for larval stages of invertebrates; establishing through experiments the coastal marine areas suitable for mussel culture and lagoon areas suitable for controlled rearing of *Mya arenaria* and shrimps; elaboration of the first technologies for controlled breeding and rearing of mussels, *Mya arenaria* and shrimps (1974-1976); determining the nutritional value of reared indigenous invertebrates.

Among personal contributions to the assignment mentioned, the following activities and achievements are included: elucidating the evolution of the natural annual sexual cycle of rock and deep water mussels and *Mya arenaria* mollusk and methods for conditioning bivalve spawners and for stimulating the controlled spawn laying.

In 1977, he collaborated on the internal research assignment "Establishing the Data Necessary for the Location and Construction of a Complex Experimental Basis for Mariculture Concerns" (responsible Dr. I. Porumb) by providing geomorphological, hydrobiological, ecophysiological and bioengineering data needed for invertebrate cultures.

Predoctoral training was completed in 1973, with the delivery of two reports.

Between 1978-1980, he was responsible for the assignment "*Technologies for Rearing Useful Indigenous Invertebrates from the Black Sea (mussels, shrimps, Mya arenaria) and Acclimatization of Oysters, Shrimps and Fish*", the only mariculture profile in the R.M.R.I. portfolio. The main objectives targeted the transposition and adaptation of the first technologies for rearing indigenous invertebrates, previously developed to the specific conditions of pilot microstations, as well as continuing and enhancing research on the acclimatization of new valuable invertebrate species in the Black Sea.

The main results were the design, construction and arrangement of two platforms of pools in which technologies for shrimp and bivalve *Mya arenaria* cultivation were established and experiments of oyster acclimatization and adaptation of rainbow trout and pike in marine waters were carried out; designing a new model of modular installation for suspended mussel rearing in open marine areas and two new types of collectors for natural fixations of mussel juveniles; construction, planning and launching into the sea a large pilot microstation for controlled mussel rearing, with a production capacity of approx. 5,000 kg/rearing cycle.

Between 1981-1985, he was involved in the assignment "*Controlled Mussel Cultures in Open Coastal Marine Areas*".

In 1986, he worked exclusively on the assignment "*Collection and Use of Marine Epibiosis as Unconventional Food Source for Fish*", whose main results were related to: two new collector models intended for obtaining large amounts of marine epibiosis; using fresh marine epibiosis combined with classical fodder for juvenile carp nutrition, increasing its survival rate and achieving a significant increase of weight gain compared to the control group.

In 1987, he had the responsibility of the research objective "*Establishing a Method for Obtaining the Mussels Required to Extract Hepatoprotective Factor from this Bivalve*", which was part of the assignment "*Obtaining Bioactive Substances from Mussels*" (responsible Dr. M. Mârza). He delivered to the beneficiary the method of obtaining mussels, the list of biotechnical characteristics of the suspended reared animals and the production cost of this raw material.

In 1988, he led the assignment on "*Improving the Fodder Basis in Fish Farming by the Intensive Use of Natural and Unconventional Aquatic Resources*".

In 1989, he was responsible for the assignment "*Establishing a Prototype Facility for Obtaining Marine Epibiosis to be Used as Livestock Feed*".

In 1990, he worked under the assignment "Improving the Fodder Basis in Fish Farming by the Intensive Use of Unconventional Resources".

After 1990, within the National Institute of Marine Research and Development "Grigore Antipa" (N.I.M.R.D.), he coordinated major research projects, including "*Ecological Methods for Improving the Marine Environment and Restoring Useful Psamobiont Bivalve and Flatfish Populations in the Coastal*

Area“, “*Highlighting the Mechanical Effect (Drive-Hitting) on the Aquatic Flora and Fauna in the Water Supply Cooling System Strainers of CNE PROD Cernavodă, as well as on Organisms in Filtered Water, Subsequently Circulated in the Cooling System of the Plant*“ and “*Introducing the Breeding Technology of the Japanese Oyster (Crassostrea gigas) to the Romanian Littoral*“ and was a member of the staff working on the project “*Technologies for the Production, Processing and Use of Marine Epibiosis*“ (responsible Dr. Eng. C.M. Ursache).

Therefore, within R.M.R.I./N.I.M.R.D., A. Telembici was noted as a marine biologist in the fields of planktonic algae and invertebrate cultures, as well as mariculture in the Balkan region.

He contributed to the achievment, under the best conditions, of a considerable number of research and development assignments/projects, with the appropriate financial contribution for the institute.

He designed, built and tested 12 models of floating installations and 23 types of collectors, both for suspended rearing of mussels and obtaining marine epibiosis, but no prototype was patented.

Besides research, he performed practical ecophysiology works with internship students coming to Agigea from the “Alexandru I. Cuza“ University, Iași, he attended the annual scientific sessions of the same university and science popularization activities organized in seaside resorts.

He contributed to the elaboration of long-term research programs on mariculture concerns.

Together with engineer G. Dimoftache, he developed the documentation on the construction and arrangement of the investment objectives for mariculture (laboratories, basins, controlled breeding center for marine organisms, experimental basis).

He prepared notes and reports for mariculture national and international meetings.

He was part in the organizing and program commission of the quadripartite Symposium on mariculture issues held in Constanța in 1986.

Since 1960, he was a member of the National Society of Biological Sciences.

He published alone or co-authored 27 scientific articles and presented over 30 scientific papers (unpublished).

He was a devoted researcher, appreciated and understanding leader, sincere and close colleague.

Dr. Alexandru S. BOLOGA
Dr. ing. Tania ZAHARIA