



FLORICA PORUMB PhD
(November 27, 1928 – June 7, 2018)

A life dedicated to the Black Sea zooplankton

In the latter half of the 20th century and at the beginning of our century, an important direction of the Romanian biological oceanography research was dominated by the personality of a lady born and raised in Oltenia, with higher education in Transylvania – in Cluj and with all her activity carried out from youth up to the end of her life at the seaside in Dobrogea. This is Florica Porumb, a passionate explorer of the Black Sea zooplankton, of the myriad of microscopic organisms floating in the mass of water – necessary food for a great many fishes.

Florica Porumb PhD has made her authority felt by the people around her by playing an important role in the scientific community of marine biologist researchers, who do their duty discreetly, competently and devotedly, favourably influencing not only the work, but also the lives of the others. For years on end she served the Marine Institute “Prof. Ioan Borcea” at Agigea (known as Agigea Station), then the Romanian Marine Research Institute, which became the Marine Research Institute “Grigore Antipa” later. From time to time, even after she retired (March 1986), Florica Porumb and her husband, Ioan Porumb, an ichthyologist, former researcher at the same institution, went to visit the laboratories where they worked for a lifetime to see the library again and the former colleagues. As I saw them, from the

window of my second-floor lab at GeoEcoMar Institute, a neighboring building, where I was working, they appeared as a classical photo of a stately, self-confident pair with an impeccable, upright posture, walking quietly along the alley which leads to the institute... After visiting the “Grigore Antipa” Marine Research Institute, they used to come to GeoEcoMar Institute. We would have a cup of coffee together, chat about weather, health, about our future plans, news about our former colleagues and, every time, we parted promising to meet again. After Ioan Porumb left for eternity (July 17, 2011), I communicated with Florica Porumb only on the phone. Until one day, when her son answered my call... Mrs. Porumb had left us forever, just the day before, on June 7th, after the sufferings she had boldly and optimistically faced for months, and still at the work table. She would have been 90 years old quite soon...

Florica Porumb (born Buceleț) came to the world on 27th November 1928 in the town of Caracal, the capital of the former Romanați county, parents being Alexandrina (housewife) and Florea (non-commissioned officer). Her father fought in the World War I at Mărășești and was a prisoner of the Germans, and, between World War I and World War II, he worked as a career officer at the Sibiu military station – then he retired to Caracal; her father being subject to the rigors of the army changed the station, moving with his family from one place to another. Thus Florica Porumb attended the Primary School at Piatra Olt and the high school in Craiova.

After graduating from “Elena Cuza” High School in 1947, Florica Porumb became a student at the Faculty of Natural Sciences of the “Victor Babeș” University in Cluj, Department of Biology-Zoology, which she graduated with a diploma of merit in 1952. The Professors of the University in Cluj – Vasile Radu, Eugen A. Pora, Emil Pop, Eugen Ghisa, Victor Pop, Marcu Oreste, Ion Ciobanu, Victor Preda and others were renowned scientific personalities, true scholars and patriots; they had thorough training and life experience in downtrodden times – the war and the tearing of the country, and especially, afterwards, the establishment of the communist regime; these Professors formed a team of excellence honoring the institution that had returned from exile and they urged the students to learn thoroughly and acquire knowledge profoundly. In addition to the study and the strong impression that these personalities had on her, she also remembered the harsh winters with shortage of fuel, food shortage and little money, specific to the post-war times.

The future biologist specialist in zoology – Florica Porumb was formed under these conditions.

Steps of affirmation

Immediately after graduating with a diploma of excellence, Florica Porumb was assigned in Bucharest, at “Casa Scânteii”, but under the strong influence of her Professors – especially Acad. Eugen Pora, she wanted to embrace a biological research career at the Black Sea. In order to do this, she requested and obtained the

modification of the governmental assignment for the Fisheries and Pisciculture Institute set up in Constanța by the new regime. She came to Constanța and was appointed at the young faculty as a principal university lecturer at the Department of Biology, Chair of Hydrobiology, for the period 1952–1953. She lived in the building of the Institute (in a former cell on the first floor – now the Episcopal Palace) in Constanța until 1953. It so happened that, at the Fisheries and Pisciculture Institute, she made the acquaintance of Ioan Porumb – researcher at the Marine Zoological Institute of Agigea and Professor's assistant (1950–1953), collaborator of Prof. Sergiu I. Cărbăușu for the ichthyology courses at the Fisheries and Pisciculture Faculty; the two young people married in Constanța on 2nd March 1953, then Florica Porumb moved to Agigea Zoological Institute, where her husband lived. The Institute was to become for the young scientist, for a long while, a working place and a welcoming home for many scholars from the country and abroad, who came for the summer holidays to the seashore not only for the benefits of thalassotherapy, but also for meeting and discussing present day problems, or experimenting and testing working hypotheses they had previously thought over (Gr. Antipa, C. Antonescu, Al. Borza, C. Brătescu, M. Băcescu, S. Cărbăușu, N. Cosmovici, M. Celan, R. Codreanu, M. Gușuleac, N. Gavrilescu, Constantin Motaș, E. Macovschi, Eugen A. Pora, V. Radu, I. Simionescu, I. Tuculescu and many others). In 1953 she was promoted laboratory chief at the same faculty.

Certified as a junior assistant, Florica Porumb was appointed at the Marine Zoological Institute “Prof. I. Borcea” at Agigea in September 1953, through the decision of the “Al.I. Cuza” University of Iași, and she was also a scientific researcher of the Committee of Hydrobiology at the Romanian Socialist Republic Academy for the period 1955–1956. Since 1956 she worked as a scientific researcher at the “Prof. I. Borcea” Marine Research Institute – Agigea, occupying the position of principal scientist (1961–1962) and Head of the Plankton Section (1962–1970). During all these years, Florica Porumb studied the organisms living in the water mass, focusing on the zooplankton qualitative, quantitative and dynamic structure as well as on its role as food for planktonophagous fish; she also carried out a didactic work.

Starting with March 1st, 1970, following the integration of Agigea Station with all its infrastructure and the entire staff within the structure of the newly established Romanian Marine Research Institute (IRCM) in Constanța, Florica Porumb occupied the position of a scientific researcher until 1975, when she became a senior scientific researcher (1975–1987).

On the 1st March 1956, their only child – Dan, was born in the Porumb family, and the work of the two researchers was completed. At the Agigea Institute, where, in those years, in the summertime, remarkable personalities of the Romanian biology came, the child's witnesses to his growing up were: Mrs. and Prof. Pora, Mrs. and Dr. Băcescu, Mr. Mrs. and Prof. Motaș, Mrs. Prof. Necrasov, Mrs. and Prof. Cărbăușu and many others who cultivated special relationships with the Porumb family. Living at the Institute, the Porumbs raised their child as if he were

an emblem of the institution and also had the necessary time for their research. After Dan graduated from primary school, the urgent need for more favorable school conditions than those offered by the Agigea General School emerged for the family. In December 1966, the family moved house to Constanța. This environmental change provided Dan with much better conditions for intellectual and social development. The two Porumb researchers kept their enthusiasm for ocean research, although they also they had to commute to and from Agigea Institute... Looking back, it seems odd that their son did not take into his parents' footsteps; maybe he witnessed too much of the vicissitudes of the environment and the hardships of the job. It is difficult to say.

Florica Porumb's scientific authority, long-standing experience in research and her firm character, decisive in taking decisions, and also her impartiality were strong merits in her being appointed Head of the Ecology, Aquacultures and Acclimatization Laboratory of the Romanian Marine Research Institute in Constanța for the period 1977–1979. Throughout this period, she was responsible for research topics and objectives on the knowledge of the zooplanktonic populations in the Black Sea and partly the Mediterranean Sea and the Indian Ocean, the role of these populations as food for planktonophagous fish, and the conservation and protection of the marine environment.

After retirement, she continued her research activity at the Institute for several years, benefiting from access to the resources necessary for scientific projects.

Scientific activity

Imposing on herself a lifestyle based on professional training and self-improvement, Mrs. Florica Porumb obtained, in 1975, the scientific title of Doctor of Biological Sciences at the Institute of Biological Sciences of the Romanian Socialist Republic Academy in Bucharest with the dissertation "*Researches on seasonal dynamics and nictemeral variations of the main species of Copepoda from the Romanian Black Sea waters*" under Acad. Mihai C. Băcescu's scientific coordination. Further on, we will briefly illustrate the scientific activity carried out by Florica Porumb over the years, through the themes she approached and her writings (within brackets – reference to the bibliographic list):

- Structure of zooplanktonic populations – trophology, production of the main components (37), (39), (42). In particular, she studied the composition of the zooplankton in the western Black Sea region by species and by component groups: the dynamics of population development over time (years, seasons, days), nictemeral migration, distribution of zooplankton in the mass of water from the shore to the depth of 200 m;
- Pelagic Copepoda biology – dynamics, fertility, production, productivity (21), (22), (23), (25), (26), (27);
- Zooplankton dynamics in the waters of the Romanian Black Sea continental shelf (31), (49), (50);

- Zooplankton nictemeral migrations of Copepoda (*Pseudocalanus elongatus*, *Centropages ponticus* and *Acartia clausi*) (12), (13), (15), (17);
- Reproduction, development and distribution of pelagic copepoda (16);
- Zooplankton – phytoplankton relationships (28);
- Long-term dynamics of zooplankton productivity (36), (41), (44), (51);
- Development of zooplankton under conditions of eutrophication (29), (48);
- Zooplankton living above rock crevices (18), (24);
- Dynamics of meroplankton (20);
- Southern Mediterranean Zooplankton (Libyan coast); between 1975 and 1976, she participated in a Mediterranean Zooplankton Research Program on board the B22 “Delta Dunării” during 3 expeditions in the waters of the Libyan coast (33), (34), (35) (53);
- Research in the Western Indian Ocean – R.P. Mozambique (32);
- Biochemistry of Cystoflagellat *Noctiluca scintillans* (46), (47);
- Efficiency of energy transformations in the pelagic ecosystem (43);
- New species in the Romanian Black Sea waters (4), (5), (9), (10), (30);
- Identification and signaling of two species of parasitic Copepoda – *Modiolicola insignis* and *Septosaccus cuenoti*, in the *Mytilus galloprovincialis* cavity;
- Adult identification of *Saculina carcini* (Cirripedia, Sacculinidae) – Ecto-parasite *Rhizocephala Castrator* of Crabs (Decapoda);
- Identification and description of 4 species of Copepoda from Fam. Monstrillidae, previously unknown at the Romanian seaside;
- Identification of the *Verruca* (Cirripedia, Pedunculatae) larva, previously unknown;
- Identification of two species of jellyfish (*Rathkea octopunctata* and *Sarsia tubulosa*).
- The importance of zooplankton for pelagic fish distribution (40);
- Zooplankton as sprat food (38), (45);
- Fish biology – *Trachurus mediterraneus ponticus*;
- History of Romanian marine research (52).

Florica Porumb’s activity has resulted in more than 70 scientific papers published in specialized journals in the country and abroad. In addition, she participated in a large number of scientific research contracts under the aegis of the institutions for which she worked. Due to the contractual provisions, some of the scientific works elaborated under the contracts were not published, being capitalized and belonging exclusively to the financing units. Starting from the annual and seasonal quantitative data of planktonic biomass, Florica Porumb evaluated the amount of food consumed by fish populations (mostly sprat). This has made it possible to produce fishing forecasts and establish the exploitable quantities of fish without endangering stocks. Based on the zooplankton data, she determined the

daily, seasonal and annual feed rations, then the weight gain of consumers, their production and consumption for metabolic needs. The results obtained through these researches also supported further research on fish migration and their trophology, aspects also dealt with by Ioan Porumb, with whom Florica Porumb, colleague and wife, collaborated a lifetime, forming an exemplary family, a model in society.

Among Florica Porumb's most important papers we can count 70 publications: in periodical scientific journals – 54, general culture magazines – 11 and books – 5; 63% of her scientific work as the only author, 19% as the first author, 14% as the second author and 4% co-author, collaborating with a number of researchers, including Ioan Porumb, Teodora Onciu, Adriana Petran, Elena Ialina and others.

She published the first scientific paper in 1956 in collaboration with physiologists, Professors of the “Victor Babeş” University of Cluj – Acad. Eugen A. Pora and Prof. Roşca, together with the ichthyologist Ioan Porumb; the paper encompasses the results of research on the biology of horse mackerel in the Black Sea, the co-author – the young researcher Florica Porumb dealing with the pelagic fish food during a fishing season (1).

The papers signed by Florica Porumb PhD in the five books concern the following aspects:

- Integrated pelagic Copepoda study at the Romanian Black Sea waters – PhD thesis (56);
- Correlation between the distribution of pelagic Copepoda and heterotrophic bacteria (57);
- Black Sea Planktonic Associations – overview (58);
- Monograph of the Black Sea horse mackerel (*Trachurus mediterraneus ponticus*) (59);
- Development of populations of Cystoflagellate *Noctiluca scintillans* under the influence of the Romanian Black Sea waters eutrophication (60).

As the contents of most of the papers published by Florica Porumb have been exposed above, we would like to make only one remark on her history of Romanian marine research, which contains a bibliography of over 3000 titles, being a very useful tool for all those researchers interested in the oceanography of the Black Sea.

Educational activities

In addition to research activities, Florica Porumb took part in the students' theoretical and practical workshops for students (56) and guided them during their diploma work.

It is worth mentioning the work carried out by Florica Porumb as a member of the Romanian Naval League and her collaboration with the Marine Culture and Information Magazine “*Marea Noastră*” (Our Sea), founded by Eugen Botez (Jean Bart) in 1932, in which she published 11 scientific articles. She was the sole author of eight papers, and in three papers she signed in collaboration with her husband Ioan Porumb. The subjects they developed are varied and cover the following aspects:

- Plankton in Black Sea waters (68), (62), (66);
- Current status of Black Sea ecosystems (60);
- Knowledge of the biology of mammals in the Black Sea through Romanian research (65);
- The Black Sea and the ancient world (64);
- Portraits of Romanian scholars who studied the marine life (Gr. Antipa, I. Borcea, M.C. Băcescu, E.A. Pora), (63), (67);
- Historical outline of Romanian marine research in the Black Sea (61), (69) or the Mediterranean Sea (70).

Honour

Florica Porumb PhD was a member of the following national and international scientific organizations:

- *International Commission for the Exploration of the Mediterranean – CIESMM*, a well-known European Organization, founded a century ago at the initiative of a special committee chaired by Prince Albert I of Monaco in 1914, which Romania joined as a founding member in 1925, through the authority of the scientists Emil Racoviță and Grigore Antipa;

- *The CIESM Plankton Science Committee*, Monaco;

- *The Romanian Naval League (LNR)* – established in 1928 as a patriotic, cultural and public utility association, a nonprofit, non-governmental organization (NGO), outside the policies of any party, a forum for all those who love both the sea and the Danube River, and are spiritually linked to maritime and river activities, a means of promoting the Romanian maritime values and traditions, a promoter of marine culture, aiming to develop in society a state of mind, attitudes and mentalities favorable to the navy.

Passing into eternity at a venerable age, Florica Porumb left behind an important scientific work and an example of a model scholar, who honored her profession with honesty and passion, publishing numerous scientific papers, novel pages, ideas and projects in progress. She was among the first researchers in the study of the Black Sea zooplankton, an important dynamic system in Black Sea productivity, greatly affected by global climate change, a system representing the trophic basis of planktonophagous fish. She left behind new knowledge about the Black Sea biology. Turning into account Florica Porumb's work and continuing the marine researches in her direction are necessary. And she also left behind the memory of a well-informed researcher of high professional culture, an optimistic and generous soul.

Prof. Dr. Marian-Traian GOMOIU,
Member of the Romanian Academy

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