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### Obituary: Norberto Della Croce (1926-2011)

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## Obituary: Norberto Della Croce (1926–2011)



Prof. Norberto Della Croce in 2002 on board the RV Abate Molina during the Juan Fernandez expedition.

Prof. N. Della Croce, founder and former president for three mandates of the Italian Association of Limnology and Oceanography, died Monday, June 6, 2011 in Rapallo, after a brief but tenacious struggle with cancer. He was 85 years old.

Prof. N. Della Croce was born in Monte Rosso, a small and nice town on the eastern coast of the Ligurian Sea, homeland of rough but generous men. N. Della Croce was indeed a bright “example” of such a Ligurian man: serious, tough, growler but, honest and fair. During the Second World War he was very young but collaborated with the partisans against the fascists and later he received honours from the Italian Republic. He received his graduation in Natural Sciences cum laude from the University of Genoa (Italy) in 1951. In 1953 he participated in several oceanographic cruises carried out by the Italian Navy, then moved to the Italian Institute of Hydrobiology (1953–1955). From 1955 to 1956 he acted as a project assistant at the University of Wisconsin (USA) and later, for two years, he had a grant at the A. Dohrn Zoological Station in Naples. From 1952 to 1961 he was an assistant professor at the Zoology and Comparative Anatomy at the University of Genoa. In 1961 he received the tenure in Zoology at the University of Genoa (Italy) and during the following ten years he held the Oceanography Chair. In 1971 he became the full Professor in Hydrobiology and Aquaculture, he retired in 1998. N. Della Croce was a visiting scientist at the Columbia University Sandy Hook Marine Laboratory, at the Institute of

Environmental Medicine of the New York University Medical Center, and at the Indian Ocean Biological Center of the UNESCO in Cochin.

During the 50 years of his academic career N. Della Croce investigated the dynamics and ecology of marine and freshwater zooplankton. He carried out several expeditions in all the oceans and spent many years investigating the relationships between Cladocerans and hydrological conditions. Despite his declared aversion for taxonomy, he created a team of expert taxonomists and became the most renowned expert in the world on the biology and ecology of the cladoceran *Penilia avirostris*.

N. Della Croce was the initiator of biological oceanography in Italy, and was the Italian scientific representative in most international organizations, including the UN, ICES, CIESM, MAP, UNEP and the IOC. Since the 1980s N. Della Croce expanded his investigations on the fisheries of small pelagics and the impacts of marine pollution. In the 1990s he established the first team of Italian researchers with interests in hadal ecology. He was the chief scientist in the Oceanographic Italian Programme within the International Geophysical Year; in the US Biological Programme in the frame of the International Indian Ocean Expedition; in the Atacama Trench International Expedition of the University of Genoa in the Pacific Ocean; in the "Oceanic and Coastal Chilean Islands Project" research program between the Europe-Latin America Center of the University of Concepción and the Dipartimento per lo studio del Territorio e delle sue Risorse of the University of Genoa (Isla Mocha, Isla S. María and Archipelago Juan Fernández); and in an international research programme on marine meiofauna in the Galapagos Islands.

He was the founder of several scientific associations, including the Italian Association of Limnology and Oceanography, for which he acted as the President for three mandates (1975–76, 1991–92 and 1993–94), the Italian Society of Marine Biology and the Italian Society of Ecology.

N. Della Croce was a member of the Editorial Board of "Chemistry and Ecology", the "Journal of Plankton Research" and "Memorie Istituto Italiano di Idrobiologia". Norberto Della Croce was author or co-author of about 200 scientific papers (see [1–53] below). After he retired he continued planning expeditions to the most remote and extreme marine ecosystems on Earth and began a productive career as a writer of novels and short romances. He left all of his possessions to the missionaries in Chile to aid the poor children of the region that he loved investigating during his long life as a scientist.

#### A selection of scientific papers illustrating the topics investigated by Norberto Della Croce

- [1] N. Della Croce, *The conditions of sedimentation and their relations with Oligochaeta populations of lake Maggiore*, Mem. Ist. Ital. Idrobiol. Suppl. 8 (1955), pp. 39–62.
- [2] N. Della Croce, *Recent findings of a marine cladoceran, Penilia avirostris Dana, in the south Tyrrhenian Sea, and their ecological value*, Rapp. Proc.-Verb. Reun., C.I.E.S.M. XVI. 2 (1961), pp. 215–216.
- [3] N. Della Croce, *Aspects of microdistribution of the zooplankton*, Rapp. Et Proc. -Verb. Ices 153 (1962), pp. 149–151.
- [4] N. Della Croce, *The marine cladocera Penilia avirostris Dana in the American waters of the pacific ocean*, Nature 201 (4921) (1964), p. 842.
- [5] N. Della Croce and L.B. Holthuis, *Swarming of Charybdis (Goniohellenus) edwardsi leene & buitendijk in the Indian Ocean (crustacea, decapoda, portunidae)*, Boll. Mus. Ist. Biol. Univ. Genova XXXIII (164), pp. 33–38.

- [6] R. Frassetto and N. Della Croce, *Observations of DSL in the Mediterranean*, Bull. Inst. Oceanogr. Monaco 65 (1965), pp. 1–16.
- [7] N. Della Croce, *Observations on the marine cladocera Penilia avirostris Dana in north western Atlantic waters*, U.S. Fish & Wildlife Serv., Techn. Pap., Bur. Sp. Fish & Wildlife 3 (1966), pp. 1–13.
- [8] N. Della Croce and P.H.J. Castle, *Leptocephali from the Mozambique channel*, Boll. Mus. Ist. Biol. Univ. Genova XXXIV (1966), pp. 150–164.
- [9] N. Della Croce and S. Frontier, *Thecosomatous pteropods from the Mozambique channel*, Boll. Mus. Ist. Biol. Univ. Genova XXXIV (1966), pp. 107–113.
- [10] N. Della Croce and R.W. Ingle, *Stomatopod larvae from the Mozambique channel*, Boll. Mus. Ist. Biol. Univ. Genova 35 (1967), pp. 55–70.
- [11] N. Della Croce, *Fishing in the Ligurian Sea*, Underwater Naturalist. Bull. Am. Littoral Soc. Fall (1969), pp. 34–37.
- [12] N. Della Croce and C. Pedenovi, *Preliminary study of the echo-scattering layers in the eastern in Algero-Provencal basin of the Mediterranean*, Saclanteen Techn. Rep. 148 (1969), pp. 1–41.
- [13] N. Della Croce and M.I. Angelino, *Characteristics of the reproductive cycle of Penilia avirostris Dana*, Rapp. Proc.-Verb. Reun., C.I.E.S.M. XX (3) (1971), p. 405.
- [14] N. Della Croce and A. Chiarabini, *A suction pipe for sampling mid-water and bottom organisms in the sea*, Deep-Sea Res. 18 (1971), pp. 851–854.
- [15] N. Della Croce and E. Gaino, *Preliminary observations on the morphology of the male of Penilia avirostris Dana*, Rapp. Proc.-Verb. Reun., C.I.E.S.M. XX (3) (1971), p. 353.
- [16] N. Della Croce and P. Picone, *High speed plankton sampling in the north western waters of Sicily*, Rapp. Proc.-Verb. Reun. C.I.E.S.M. XX (3) (1971), p. 377.
- [17] N. Della Croce and P. Picone, *Time factor and plankton sampling in biological oceanography*, Proc. Joint. Oceanogr. Assembly. D2 A9 (1971), p. 439.
- [18] C. Pedenovi and N. Della Croce, *Biological results of sampling in the deep scattering layers of the western Mediterranean in autumn*, Saclanteen, Techn. Rep. 189 (1971), pp. 1–61.
- [19] N. Della Croce, *Nozioni di oceanografia*, Edizioni Culturali Internazionali, Genova 2 (1972), pp. 1–253.
- [20] N. Della Croce and P. Venugopal, *Distribution of marine cladocerans in the Indian Ocean*, Mar. Biol. 15 (2) (1972), pp. 132–138.
- [21] N. Della Croce and P. Venugopal, *Penilia avirostris Dana in the Indian Ocean (cladocera)*, Int. Revue Ges. Hydrobiol. 58, 5 (1973), pp. 713–721.
- [22] N. Della Croce, *Cladocera. zooplankton sheet 143*, I.C.E.S., Copenhagen, 1973.
- [23] N. Della Croce and T. Zunini Sertorio, *Production studies on the Ligurian continental shelf*, Rapp. Proc.-Verb. Reun., C.I.E.S.M. XXVII (7) (1981), pp. 95–96.
- [24] M. Fabiano, P. Salemi Picone, and N. Della Croce, *Ecological aspects of Ligurian-Tuscan surface coastal waters*, Atti Soc. Tosc. Sci. Nat., Mem., Serie B 90 (1983), pp. 81–89.
- [25] I. Dagnino, N. Della Croce, N. Drago, and V. Sciarrone, *Occurrence at surface of Pasiphaea sivado (Risso) in the Ligurian Sea*, Boll. Oceanol. Teor. Appl. 3 (1) (1985), pp. 45–49.
- [26] N. Della Croce and M. Angelino, *Marine cladocera in the Gulf of Mexico and the Caribbean sea*, Cahiers. Biol. Mar. 28 (1987), pp. 263–268.
- [27] G. Albertelli, P.M. Arnaud, N. Della Croce, and A. Eleftheriou, *Mediterranean deep-sea investigations R.V. Bannock Cruise, 9–19 September 1989*, Ist. Sc. Amb. Mar., Catt. Idrob. Pescic. Univ. Genova, Rapp. Tecn. 36 (1990), pp. 1–10.
- [28] G. Albertelli, N. Della Croce, and T. Zunini Sertorio, *Anchovy and sardine eggs and larvae on the continental shelf of the Ligurian sea. (1988–1989)*, Rapp Proc.-Verb. Reun., C.I.E.S.M., XXXII, 1.Y II° 1. P (1990), p. 302.
- [29] I. Dagnino, N. Della Croce, M. Fabiano, and T. Zunini Sertorio, *The Ligurian sea: the oceanographic features*, in *The Management of Semi-Enclosed Seas: The Emerging Global Pattern And The Ligurian Case* Genova, 1990, pp. 217–232.

- [30] G. Albertelli, P.M. Arnaud, N. Della Croce, N. Drago, and A. Eleftheriou, *The deep Mediterranean macrofauna caught by traps and its trophic significance*, C.R. Acad. Sci. Paris 315 (1992), pp. 139–144.
- [31] M.I. Angelino and N. Della Croce, *Marine cladocera in the Hong Kong waters*, Bol. Soc. Biol. Concepcion (Chile), Tomo 63 (1992), pp. 25–26.
- [32] N. Della Croce, *Marine environmental studies in coastal waters*, in *Problems of the Black Sea*, Sevastopol, Ukraine, November 10–15, International Conference, 1992, pp. 168–172.
- [33] N. Della Croce, O. Parra, J. Stuardo, A. Arrizaga, R. Ahumada, J. Chong, And C. Oyarzun, *Monografia I – El Rio Biobio: el mar adyacente como unidad ambiental – gestion de los recursos hidricos de la cuenca del Rio Biobio y del area marina adyacente*. Universidad De Concepcion (Chile) (1992), pp. 9–61.
- [34] R. Danovaro, M. Fabiano, and N. Della Croce, *Labile organic matter and microbial biomasses in deep-sea sediments (eastern Mediterranean Sea)*, Deep Sea Res. 40 (5) (1993), pp. 953–965.
- [35] N. Della Croce, O. Parra, and J. Stuardo, *El Rio Biobio y el mar adyacente como unidad ambiental, in el Rio Biobio y el area marina adyacente*, Chile Central. (Contribuciones). Editor N. Della Croce, (1994), pp. 5–24.
- [36] N. Della Croce, *El rio biobio y el area marina adyacente. Chile Central. (CONTRIBUCIONES). IST. SC. AMB. MAR. S. MARGHERITA LIGURE*, 1994, pp. 1–164.
- [37] N. Della Croce and C. Valdovinos, *Characterizacion ambiental del area marina costera bajo la influencia de la cuenca hidrografica del rio biobio, chile central. (1989-1992)*, in el rio biobio y el area marina adyacente. chile central. (contribuciones), editor N. Della Croce, 1994, pp. 85–164.
- [38] R. Danovaro, N. Della Croce, A. Eleftheriou, M. Fabiano, N. Papadopoulou, C. Smith, and A Tselepides, *Meiofauna of the deep eastern Mediterranean sea: distribution and abundance in relation to bacterial biomass, organic matter composition and other environmental factors*, Prog. Oceanogr. 36 (1995), pp. 329–341.
- [39] R. Danovaro, M. Fabiano, G Albertelli, and N. Della Croce, *Vertical distribution of meiobenthos in bathyal sediments of the eastern Mediterranean sea: relationship with labile organic matter and bacterial biomasses*, P.S.Z.N. Marine Ecology. 16(2) (1995), pp. 103–116.
- [40] N. Della Croce, S. Connell, and R. Abel, eds., *Coastal Ocean Space Utilization III*, E & FN Spon, Chapman & Hall, London, 1995, pp. 36–39.
- [41] G. Gallino and N. Della Croce, *Protection and management of the coastal area among bordering countries (RaMoGe agreement)*, in *Coastal Ocean Space Utilization III*, E & FN Spon, Chapman & Hall, London, 1995, pp. XXV–XXXVII.
- [42] F. Boero, N. Della Croce, and S. Geraci, *The ecology of marine resting stages: a new perspective in marine science*, Atti 11° Congr. Ass. It. Oceanol. E Limnol., Sorrento, 26–28 October 1994, (1996), pp. 405–409.
- [43] N. Della Croce, R. Danovaro, M. Fabiano, G. Albertelli, and A. Tselepides, *Benthic bacteria and seasonal changes of organic input in the deep-sea sediments of the Cretan Sea*, Preliminary Results. J. Rech. Oceanographique. 21 (1–2) (1996), pp. 21–28.
- [44] N. Della Croce, *Gestion sustentable de los recursos marinos vivos*, in *Gestion De Sistemas Oceanograficos Del Pacifico Oriental*, IOC/INF., pp. 165–173.
- [45] N. Della Croce, A. Covazzi, D. Marrale, A. Pusceddu, M. Petrillo, G. Ciceri, and R. Danovaro, *A benthic microbial loop and oxygen demand in organic enriched sediments of the Ligurian sea*, S.I.T.E. Atti. 18 (1997), pp. 279–282.
- [46] N. Della Croce, A. Covazzi, M. Chiantore, R. Danovaro, and G. Albertelli, *A community experiment using benthic chambers: changes in macro and meiobenthic compartments*, S.I.T.E. Atti. 18 (1997), pp. 283–284.
- [47] R. Danovaro, D. Marrale, N. Della Croce, A. Dell'Anno, and M. Fabiano, *Heterotrophic nanoflagellates, bacteria, and labile organic compounds in continental shelf and deep-sea sediments of the eastern Mediterranean*, Microb. Ecol. 35 (1998), pp. 244–255.

- [48] R. Danovaro, D. Marrale, N. Della Croce, P. Parodi, and M. Fabiano, *Biochemical composition of sedimentary organic matter and bacterial distribution in the Aegean sea: trophic state and pelagic-benthic coupling*, J. Sea Res. 42 (1999), pp. 117–129.
- [49] R. Danovaro, N. Della Croce, A. Dell'Anno, M. Fabiano, D. Marrale, and D. Martorano, *Seasonal changes and biochemical composition of the labile organic matter flux in the Cretan sea*, Progr. Oceanogr. 46 (2000), pp. 259–278.
- [50] R. Danovaro, A. Dell'Anno, A. Pusceddu, D. Marrale, N. Della Croce, M. Fabiano, and A. Tselepides, *Biochemical composition of pico-, nano-and micro-particulate organic matter and bacterioplankton biomass in the oligotrophic Cretan sea (NE Mediterranean)*, Progr. Oceanogr. 46 (2000), pp. 279–310.
- [51] R. Danovaro, D. Marrale, A. Dell'Anno, N. Della Croce, A. Tselepides, and M. Fabiano, *Bacterial response to seasonal changes in labile organic matter composition on the continental shelf and bathyal sediments of the Cretan Sea*, Progr. Oceanogr. 46 (2000), pp. 345–366.
- [52] R. Danovaro, A. Tselepides, A. Otegui, and N. Della Croce, *Dynamics of meiofaunal assemblages on the continental shelf and deep-sea sediments of the Cretan sea (ne Mediterranean): relationships with seasonal changes in food supply*, Progr. Oceanogr. 46 (2000), pp. 367–400.
- [53] R. Danovaro, C. Gambi, and N. Della Croce, *Meiofauna hotspot in the Atacama Trench (Southern Pacific Ocean)*, Deep-Sea Res. 49 (2002), pp. 843–857.

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