

## ROBERT H. PETERS HONORED WITH ASLO'S CITATION FOR SCIENTIFIC EXCELLENCE

<sup>1</sup>Paul del Giorgio, <sup>2</sup>Yves Prairie and <sup>1</sup>Michael Pace

<sup>1</sup>Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

<sup>2</sup>Dépt. des sciences biologiques, Université du Québec à Montréal (UQAM), CP 8888, Succ. Centre Ville, Montréal, Québec Canada H3C 3P8

Robert H. Peters was honored posthumously at the ASLO 1997 Aquatic Science Meeting with ASLO's Citation for Scientific Excellence, for his outstanding contributions to limnology in general and to phosphorus cycling in lakes in particular, and for his leadership in epistemological and philosophical thinking in the ecological sciences. This periodic award was initiated in 1987 to recognize members who could not fulfill their career potential because of early death or disability. Peters' wife, Antonella Cattaneo (photo below), was present to receive the award.

Peters was born in Toronto, Ontario, Canada, on August 2, 1946. He received his Ph.D. in 1972. His doctoral thesis on regeneration of phosphorus by zooplankton-an issue which is still of great topical importance- was supervised by

the late Frank Rigler.

Highlights of his academic career include post-doctoral fellowships in Pallanza (Italy), 1972-1973; in Vienna (Austria), 1973; and in Munich (Germany), 1974. He became Assistant Professor in 1974, Associ-

ate Professor in 1979, and Full Professor in 1986 at McGill University.

For readers of the limnological and ecological literature, Robert Peters is recognized as a major figure, and his contributions have been numerous and far reaching. He has written four books (Peters 1983; 1991; Rigler and Peters 1995; Hakanson and Peters 1995), co-edited one (Peters and de Bernardi 1988), and published over 130 scientific papers, comments and book chapters. There were two main themes in his creative scientific work. First, he endeavored to build empirical relationships that describe general patterns in limnology and ecology. He saw such relationships as exemplary of a new ecology which is oriented towards prediction. His initial focus was on phosphorus dynamics in lakes (Peters and Rigler 1973; Peters and Lean 1973; Peters 1975), and later expanded his interests to a much broader array of topics, including zooplankton behavior (Peters and Downing 1984), material flow in aquatic systems (del Giorgio and Peters 1994), plant ecology (Shippely and Peters 1990 a-b; Marshal and Peters 1988; Duarte et al. 1986), invertebrate ecology (Morin and Peters 1988), fish ecology (MacKenzie et al. 1990; Godbout and Peters 1988), community ecology (Duarte et al. 1987), ecotoxicology (Pawlisz 1993a-b; Mailhot et al. 1989; Mailhot and Peters 1998), and allometric relationships in autoecology (Ahrens and Peters 1991). His most influential work was his first book, *Ecological Implications of Body Size* (1983, Cambridge University Press), which presents a powerful overview of the utility of allomet-

ric relationships for the study of ecological problems and for building ecological theory. In all of these areas, he worked with the same principle, that we must make science more effective in order to address current environmental and social problems.

The second element in his research was the criticism of traditional scientific approaches. The essence of the message conveyed by Peters is this: Ecologists have collected impressive amounts of observations and facts, but they have failed to sufficiently identify and formulate theories that go beyond the facts, theories that can be tested and that can predict. Rob reflected his views in several influential papers dealing with conceptual problems in the ecological science (Peters, 1971, 1976, 1977, 1978, 1986, 1988, 1989, 1990). The culmination of these series was his book "A Critique for Ecology" (Peters, 1991), where he synthesized his views on the problems, and also on the solutions. This book was received with quite contrasting reactions among the scientific community, but nevertheless succeeded in generating a lively debate on the effectiveness of current approaches in ecological and environmental sciences. This was, in all likelihood, Rob's main objective.

As a recognition to his scientific contribution to aquatic ecology, Rob Peters was given the Rigler Award by the Society of Canadian Limnologists in 1992. He was also awarded the Prize in Limnetic Ecology offered by the International Ecology Institute in 1991. This award gave him the opportunity to fulfill a long standing aspiration: to complete a book based on his interpretation of the writings and ideas of the late Frank Rigler, who greatly influenced Rob's approach to science. The result was the book *Science and Limnology* (1995), co-authored by Rigler and Peters, explaining the epistemological views of both outstanding intellectuals and demonstrating the relevance of such views to the day-to-day tasks that confront limnologists and other scientists: teaching, grant applications, peer reviews, identification of appropriate research topics, pursuits of research, and the defense of social and scientific relevance.

Rob also displayed an impressive public activity. Until last year, he was President of the Society of Canadian Limnologists, and was upon his death on the Board of the American Society of Limnology and Oceanography, Director (Central Canada) of the North American Lake Management Society and Associate Editor of the journal *Lake and Reservoir Management*. He was on the editorial board of *Limnology and Oceanography*, *ISIS Reviews*, and *Lake and Reservoir Management*, and regularly sat on provincial (FCAR) and federal (NSERC) grant committees.

The published and public work of Robert Peters, summarized above, is generally well known in the scientific community, but we must emphasize some of his achievements that are less public. Rob supervised in the last 16 years nine postdoctoral researchers, ten Ph.D. theses, and twelve Master's theses at McGill University, and many of his former students and associates now hold positions in science and academia where they continue to be influenced by Rob's ideas. But as professor, advisor, and most importantly, as a

friend, Rob has had a major intellectual influence on the career and scientific development of countless more individuals, at levels ranging from undergraduate students to senior scientists. He was a model for intellectual integrity and profundity, and was a constant source of inspiration and strength to students and colleagues alike. His apparent unbending views on science were in contrast with his own personal modesty. Outside speakers invited to McGill University, familiar with Rob's writing, often expected a tough, unyielding opponent, and what they actually found was a kind and humble man, aware above all of his own limitations. Rob taught with his own example, that we should not fall into scientific self-indulgence, and that criticism starts with oneself.

Robert Henry Peters passed away on June 26, 1996, at the prime of his rich scientific career and personal life. With his death, the scientific community has lost one of its major exponents, and all of us who had the privilege of sharing his friendship are deeply saddened by his departure.

#### References

- Ahrens, M. and R.H. Peters. 1991. Plankton community respiration: Relationships with size distribution and lake trophy. *Hydrobiologia* 224:77-87.
- del Giorgio, P.A. And R.H. Peters. 1994. Planktonic P/R ratios in lakes: Influence of lake trophy and dissolved organic carbon. *Limnol. Oceanogr.*39(4):772-787.
- Duarte, C.M., S. Agusti and R.H. Peters. 1987. The upper limit to the abundance of aquatic organisms. *Oecologia* 74:272-276.
- Duarte, C.M., J. Kalff and R.H. Peters. 1986. Patterns in biomass and cover of aquatic macrophytes in lakes. *Can. J. Fish. Aquat. Sci.* 43:1900-1908.
- Godbout, L. And R.H. Peters. 1988. Potential determinants of stable catch in the brook trout (*Salvelinus fontinalis*) sport fishery in Quebec. *Can. J. Fish. Aquat. Sci.* 45:1771-1778.
- Hakanson, and R.H. Peters. 1996. Predictive Limnology. SPB Academic Publishing, Amsterdam. 464 pp.
- MacKenzie, B.R., W.C. Leggett and R.H. Peters. 1990. Estimating larval fish ingestion rates: Can laboratory derived values be reliably extrapolated to the wild? *Mar. Ecol. Prog. Ser.* 67:209-225.
- Mailhot, H. and R.H. Peters. 1988. Empirical relationships between 1-octanol/water partition coefficient and nine physico-chemical properties. *Environ. Sci. Technol.* 22:1479-1488.
- Mailhot, H., R.H. Peters and J.R. Cornett. 1989. The biological half-time of radioactive cesium in poikilothermic and homeothermic animals. *Health Phys.* SG:473-484.
- Marshall, T.M. And R.H. Peters. 1989. General patterns in the seasonal development of chlorophyll-a for temperate lakes. *Limnol. Oceanogr.* 34:856-867.
- Morin, A. and R.H. Peters. 1988. Effect of microhabitat feature, seston quality, and periphyton on abundance of overwintering blackfly larvae in Southern Quebec. *Limnol. Oceanogr.* 33:431-445.
- Pawlisz, A.V. and R.H. Peters. 1993a. A radioactive tracer technique for the study of lethal body burdens of narcotic organic chemicals *Daphnia magna*. *Environ. Sci. Technol.* 26:2795-2800.
- Pawlisz, A.V. and R.H. Peters. 1993b. A test of the equipotency of internal burdens of nine narcotic chemicals using *Daphnia magna*. *Environ. Sci. Technol.*26:1802-1806.
- Peters, R.H. 1971. Ecology and the world view. *Limnol. Oceanogr.* 16:143-147.
- Peters, R.H. 1975. Phosphorus excretion and the measurement of feeding and assimilation by zooplankton. *Limnol. Oceanogr.* 20:858-859.
- Peters, R.H. 1976. Tautology in evolution and ecology. *Am. Nat.* 110:1-12.
- Peters, R.H. 1977. The unpredictable problems in trophodynamics. *Environ. Biol. Fishes* 2:197-202.
- Peters, R.H. 1978. Predictable problems with tautology in evolution and ecology. *Am. Nat.* 112:759-762.
- Peters, R.H. 1983. *The Ecological Implications of Body Size*. Cambridge

- University Press, Cambridge. 329 pp.
- Peters, R.H. 1986. The role of prediction in limnology. *Limnol. Oceanogr.* 31:1143-1159.
- Peters, R.H. 1988. Some general problems for ecology illustrated by food web theory. *Ecology* 69:1673-1676.
- Peters, R.H. 1989. Pathologies in limnology. *Mem. Ist. Ital. Idrobiol.* 47:175-212.
- Peters, R.H. and R. de Bernardi (eds). 1988. *Daphnia*. Ist. Idrobiol. Pallanza.
- Peters, R.H. and D.R.S. Lean. 1973. The characterization of soluble phosphorus released by zooplankton. *Limnol. Oceanogr.* 18:270-279.
- Peters, R.H. and F.H. Rigler. 1973. Phosphorus release by *Daphnia*. *Limnol. Oceanogr.* 18:821-839.
- Rigler, F.H. and R.H. Peters. 1995. *Science and Limnology*. Ecology Institute, Germany.
- Shipley, B. and R.H. Peters. 1990a. The allometry of seed weight and seedling relative growth rate. *Func. Ecol.* 4:523-529.
- Shipley, B. and R.H. Peters. 1990b. A test of the Tilman model of plant strategies: Relative growth rate and biomass partitioning. *Am. Nat.* 136:139-153.