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Bill Ricker: A man of gifted intellect, insatiable curiosity and generous spirit

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Dr. Bill Ricker spent the time from his teens to his nineties understanding nature and quietly became one of the twentieth century's most influential biologists. His science was an honest communication of his observations, analyses and interpretations that allowed others to make intelligent decisions. He was always an advocate of science rather than an advocate of a particular point of view. Biological science was his passion providing him with an unending variety of adventures.

Writing about Bill Ricker inevitably is an interpretation that is made through one's own experience. Bill's scientific contributions were vast and mostly apparent through his publications. His influence, however, is immeasurable, other than to note that his name is known to all students and practitioners of fisheries science around the world. It is important to know Bill Ricker because he was a model scientist as well as a model Canadian. He made maximum use of his exceptional talents in an attempt to ensure that plants, animals, and their ecosystems were better understood and protected. Very few biologists can expect to have the talent and abilities of Bill Ricker. But all biologists should be motivated by his approach and passion for science.

It was about 3 p.m., 31 December 1994 and we were sitting in Don's office at the Pacific Biological Station enjoying a glass of New Year's Eve cheer. The Station was refreshingly quiet. There was a tapping at the partially opened office door and Dr. Ricker poked in his head. Instead of a traditional Happy New Year greeting he said, 'last chance to discover something new for this year.'

Bill Ricker had a life of discovery. To Bill, every day was a good day to discover something new. His publications include primary papers, translations, dictionaries, poetry, fiction, and topics too difficult to describe briefly (Figure 1). In fisheries, he is best known for his 1954 paper on stock and recruitment and for his Handbook of Computation for Biological Statistics of Fish Populations, which was first published in 1958 and eventually known as the 'green book.' The three editions of the green book summarized the contributions of a number of well-known fisheries scientists at a time that fisheries science and fisheries management were finding their roots around the world. Governments needed advice on how many fish were available to harvest safely and industry needed to be able to assess the economic opportunities. The handbook became a standard method for learning how to assess the impacts of fishing. The handbook was translated into Russian and Chinese and is still widely used around the world.

Dr. Ricker's famous 1954 paper simply titled 'Stock and Recruitment' resulted from his research while he taught at Indiana University from 1939 to

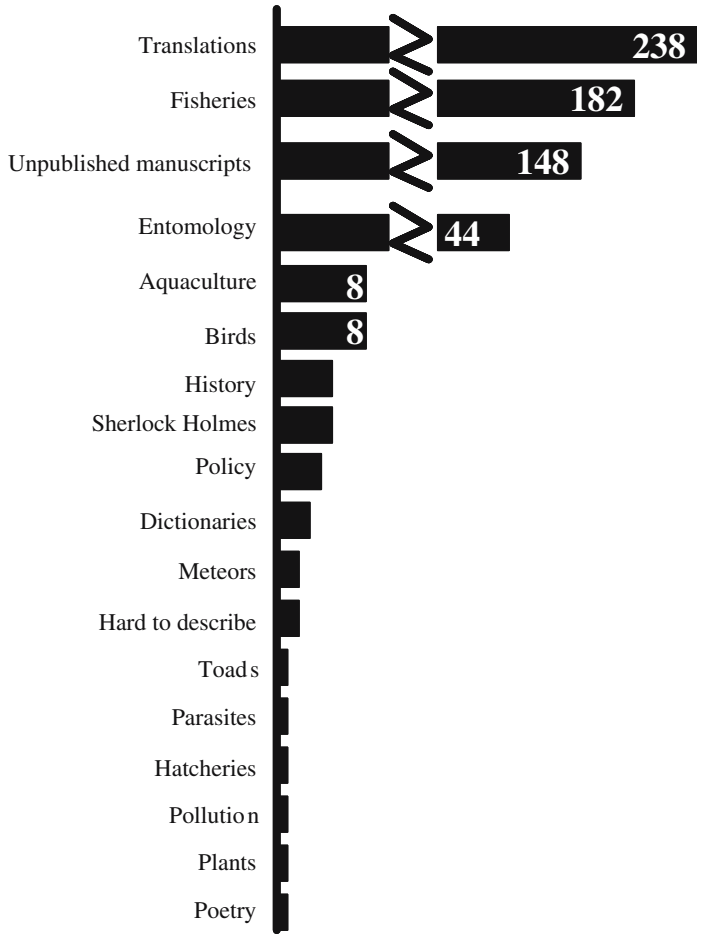

Figure 1. General topics of Bill Ricker's manuscripts and the number of publications in each category.

1950. At Indiana, he found it interesting to study the impact of sport fishing on bluegill sunfish, *Lepomis machrochirus*. He heard about the research of a famous Russian scientist named Fedor Ivanovich Baranov, which was published in 1916. In typical Ricker fashion, he learned enough Russian to translate Baranov's paper. Bill clearly credits and acknowledges the influence of the catch equation proposed by Baranov on his own work (Ricker 2005). The 1954 paper introduced the now famous 'Ricker curve,' which allows the number of juveniles (recruitment) to be estimated from the number of spawning adults (stock). Pacific salmon management had its roots in this paper. Most of what was done and is still done is based on the assumptions and results of this one paper. Although we now recognize some difficulties with the use of Ricker curves, it is most remarkable that this discovery still has such a major influence on the management of fisheries around the world some 50 years later.

This period also marked the beginning of a lifelong association between Bill and his Russian colleagues that we believe benefited both countries and fisheries science immensely. He knew that there were 10 times as many fisheries scientists in Russia working on the same issues so he learned Russian and read their publications. Bill recognized the need for open communications among scientists and his initial work with his Russian colleagues established a good foundation of mutual trust and respect. The result has been a refreshing and often vigorous exchange of scientific views with our Russian colleagues that we believe would not have

been possible (at least to the same degree) without Ricker's pioneering efforts. While technological advances have made advances in certain areas of fisheries science easier or even feasible, Ricker taught us the importance of thoughtful and constructive exchanges of scientific points of view. Peer exchanges and review were always cornerstones of Ricker's success as a scientist.

Bill Ricker was also a world authority on stoneflies. There is a story that some scientists believed that there were two W.E. Ricker's, the fishery biologist and the entomologist. His interest in stoneflies included their zoogeography as well as their systematics. Bill is recognized as describing 81 of the 617 species of stoneflies currently listed in North America. In addition, one third of the 101 genera were originally identified by Bill Ricker (Scudder 2005). Fellow entomologists considered that his system of classification was 'a thing of beauty and simplicity that made evolutionary sense.'

He wrote many other papers on fish, fisheries, and fisheries management that were influential, but one paper that Dr. Ricker enjoyed producing has largely gone unnoticed. We would like to highlight this paper, because it is an example of the treasures that can be found by re-reading Dr. Ricker's publications. A wise student would benefit from reading anything Ricker wrote about a topic before stepping too deeply in to a problem. In the mid-1960s Dr. Ricker was invited to be part of a team that was put together by the United States National Academy of Science to look at the world's future natural resources. Bill's chapter was 'Food from the sea.' Other chapters included 'The human ecosystem,' 'Interactions between man and his resources,' 'Food from the land,' 'Mineral resources from the sea,' and 'Energy resources.' Bill Ricker's job was to forecast the food that could be produced by the world's oceans. At the time there was a wide belief that quantities of food available from the sea were unlimited (Huxley undated). Bill calculated that the world fish catch might be sustainable at approximately 2.5 times the 1968 catch, or about 150 to 160 million t and that the maximum world catch would be attained by the year 2000. In 2000, the world capture fisheries reported catches of approximately 95 million t with bycatch or discards accounting for an additional 30% for a total of about 125 million t (FAO 2002). Most scientists consider that this is the maximum catch or even above the maximum (Pauly et al. 1998). The accuracy of the estimate is impressive, but the method used to make the estimate is just as remarkable. One must be careful about claiming that something is first, but we believe that the chapter Bill wrote in 1968 was the first use of what is now labelled as Ecopath (Polovina 1984). Anyone using Ecopath or Ecosim (Pauly et al. 2000) should read Ricker's 1969 paper.

Rod Langley produced a video on the contribution and accomplishments of Bill Ricker that is entitled 'A passion for science.' The objective of the video was to highlight aspects of Bill Ricker's life that would be of interest to students considering a career in fisheries science. The difficulty was keeping the video to 26 min. Left out of the video was his attempt to improve sockeye salmon, *Onchorhynchus nerka*, production by removing northern squawfish, *Ptychocheilus oregonensis* (Richardson), a key predator in Cultus Lake, in British Columbia, Canada. About 80% of the adult predators were removed resulting in an initial increase in sockeye production. However, sockeye production quickly declined as the carrying capacity of the lake limited juvenile sockeye growth. At the same time, the recruitment of squawfish soared as there was little control through cannibalism. The declining production and the increased predation eventually reduced sockeye salmon abundance. Not everything Bill Ricker did turned out as planned, but everything was a learning experience. The one thing that Bill Ricker always did was to ensure that he communicated his experiences to others so that they would learn from his trials and tribulations whether successful or not.

A few years ago, Bill Ricker was asked at an official function what he would advise about the future management of Pacific salmon. He quickly responded that he had learned to 'expect the unexpected.' Pacific salmon are one of the groups of fishes in the world that receive considerable attention of fisheries biologists. They are important in many of the coastal rivers and streams flowing into the north Pacific and they dominate the surface waters of the subarctic Pacific. Pacific salmon are an icon of environmental health and general quality of life of people along the rim of

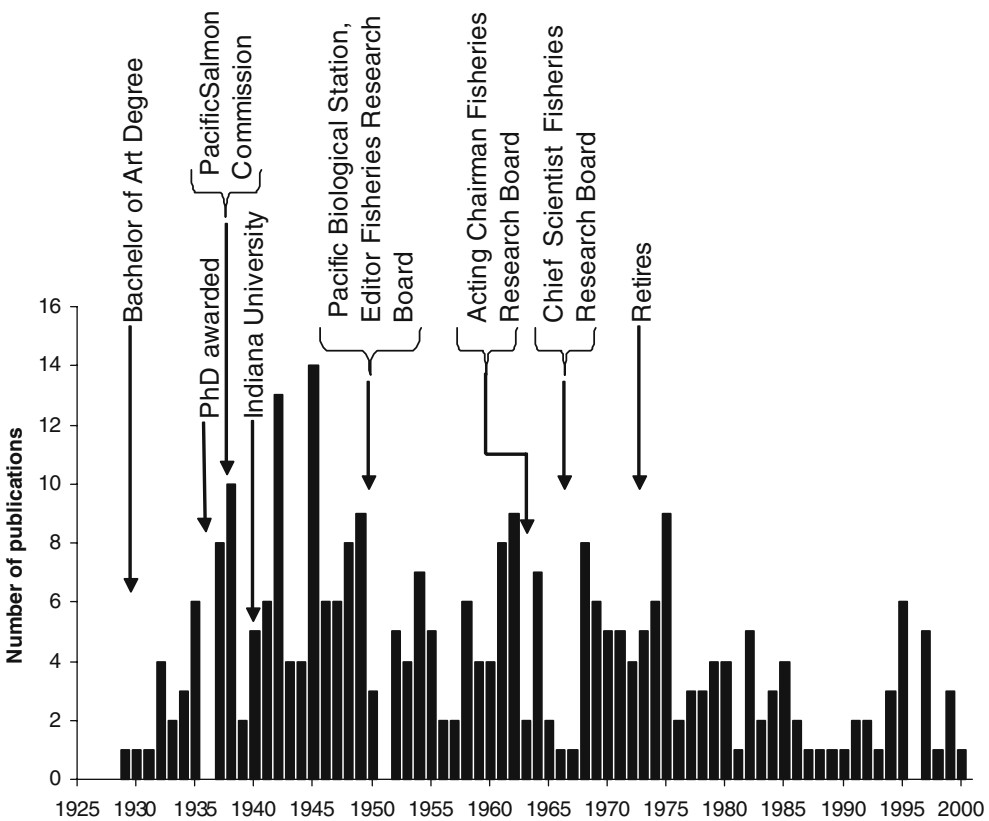

Figure 2. Chronology of Bill Ricker's major activities and the number of his annual publications up to 2000.

the Pacific from California to Busan. If the return of adult salmon to a spawning area is below expectations, someone knows and someone makes a fuss. Pacific salmon stocks are actually quite healthy despite what you might hear or read in the media. There are problems, but the generally good health of one of the world's most important groups of fishes is because Bill Ricker (and others) puzzled over the mysteries of the mechanisms that regulated their abundances. His scientific contributions have been important, but his advice to expect the unexpected should remain a fundamental rule in the management of Pacific salmon.

Bill Ricker provided a structure to manage Pacific salmon at a time that the modern fishery was developing. His standard approach for his work on Pacific salmon and science in general, was to make a series of simple calculations and as relationships became clear, more complicated computations were considered. He was always careful to clearly articulate his assumptions and his reasons for choosing a certain course of action. Biologists would be well advised today to employ the same standards. While he was careful to adopt appropriate technologies to assist him in his modeling and other work, he would always check his calculations using his favorite slide rule. It was his way of instilling a degree of common sense and logic in his solutions.

In 1973, Bill Ricker retired at the age of 65. He continued his passion for science through to early 2001 when he no longer could come to his office at the Pacific Biological Station. Bill died on 8 September 2001, shortly after his 93rd birthday. Our last conversation with Bill just days before his death was about the British Columbia fishery. He was genuinely interested in the state of stocks and the fisheries (particularly Pacific salmon) and was keen to offer his own thoughts on the current state of affairs.

Figure 3. Bill Ricker's double bass.

Figure 4. A photograph in the Nanaimo paper early in the 1950s, showing Bill Ricker and his musical family.

It is impossible to summarize his life in this paper and even a book of normal size would be insufficient. Highlights of his travels and accomplishments are summarized in Figure 2. He finished his PhD at the University of Toronto in 1935, married Marion Torrance Cardwell, and took a postdoctoral honeymoon to Europe. He worked briefly for the, then new Pacific Salmon

Table 1. Reasons for influence of Bill Ricker.

– Gifted intellect
– Attracted to nature
– Insatiable curiosity
– Well trained in high school and university
– Skilled in quantitative analysis
– Led the development of commercial fishing with quantitative approaches
– Approaches were simple and powerful
– Elegance of insight
– Remarkable memory of literature, people, anything
– Master of the Russian fisheries literature
– Researched issues that were important to fishermen and managers
– Extraordinarily generous
– Competitive
– Dependable
– Shy but friendly; private but comfortable with himself
– Enjoyed young people
– Non-judgmental in his scientific approaches and let the data guide him to his conclusions
– Never thought of himself as being better than others
– Honest in his science
– Published

Commission in 1937–1938 in British Columbia. He left Canada in 1939 to teach at Indiana University for 12 years. J. R. Dymond managed to persuade Bill to return to Canada to head up the publications unit of the Fisheries Research Board. Bill turned a rather parochial journal into one of the world's most influential publications on aquatic sciences. He was a meticulous, but supportive editor. He described his work as an editor as sufficient to allow him to carry out research that was useful, interesting, and compatible with an office existence. As editor, Bill was also able to keep abreast of the latest research results. It is important to note that Bill did some of his best science during this period. This was not only a period of development of the fisheries off Canada's Pacific coast, but also a period of rapid expansion of world fisheries. Large fleets were being built with the expectation of finding food, employment, and profit. Governments and industry were desperate for scientific advice and Bill Ricker was now positioned to provide that assistance.

It is also important to know that Bill Ricker was a respected parent and a loving and devoted husband. Bill's sons remarked that he placed their interests first. Bill loved to do things with his sons and their friends, particularly when it involved music. In the early 1950s, two of his four sons played in the Nanaimo Symphony Orchestra. Bill had played the violin in the University of Toronto Orchestra, and learned to play the balalaika but, wanting to join his sons, he asked the conductor what instrument was needed. He learned to play the double bass (Figure 3) in 6 months and he and a third son joined the Nanaimo Symphony Orchestra (Figure 4). Bill had two songbooks that recorded his favorite songs. He apparently knew one song in more than one half dozen languages. We listened to him sing in Russian at a surprise 84th birthday party for him in a dining room of the Avachie Hotel in Petroplavlosk, Kamchatka. We also heard a recording of him singing some songs from his books only a few weeks before his death in a voice that sounded quite professional. Bill kept records of birds he had seen, plants he had found, and mountains he had climbed (Ricker 2005b). He seemed shy, but he enjoyed talking to people sharing both his knowledge and experience and people enjoyed talking to him. After his beloved wife Marion died in 1991, he would attend house parties, fitting seamlessly into an assemblage of personalities ranging from writers and artists to rugby players.

Dr. Ricker's contributions to biological sciences are recorded in his publications. His influence may be immeasurable but the reasons for his influence are worth considering. Like other intangibles, the reasons may vary among observers. The list

Table 2. Publications that Bill Ricker considered to be significant and several more that we selected.

Ricker, W.E. 1934. An ecological classification of certain Ontario streams. University of Toronto Studies, Biological Series No. 37, pp. 1–114. (Publications of the Ontario Fisheries Research Laboratory, No. 49, 1–114). [Fisheries Research Board of Canada, Studies Supplement No. 507].

Ricker, W.E. 1934. A critical discussion of various measures of oxygen saturation in lakes. Ecology 15: 348–363.

Ricker, W.E. 1937. The concept of confidence or fiducial limits applied to the Poisson frequency distribution. Journal of the American Statistical Association 32: 349–356.

Ricker, W.E. 1937. Physical and chemical characteristics of Cultus Lake, British Columbia. Journal of the Biological Board of Canada 3: 363–402.

Ricker, W.E. 1937. The food and the food supply of sockeye salmon (*Oncorhynchus nerka* Walbaum) in Cultus Lake, British Columbia. Journal of the Biological Board of Canada 3: 450–468.

Ricker, W.E. 1938. On adequate quantitative sampling of the pelagic net plankton of a lake. Journal of the Biological Board of Canada 4: 19–32.

Ricker, W.E. 1938. Seasonal and annual variations in the quantity of pelagic net plankton, Cultus Lake, British Columbia. Journal of the Biological Board of Canada 4: 33–47.

Ricker, W.E. 1938. A comparison of the seasonal growth rates of young sockeye salmon and young squawfish in Cultus Lake. Biological Board of Canada, Progress Reports of the Pacific Coast Stations No. 36: 3–5.

Ricker, W.E. 1938. "Residual" and kokanee salmon in Cultus Lake. Journal of the Fisheries Research Board of Canada 4: 192–218.

Ricker, W.E. 1941. The consumption of young sockeye salmon by predacious fish. Journal of the Fisheries Research Board of Canada 5: 293–313.

Forester, R.E. & W.E. Ricker. 1942. The effect of reduction of predaceous fish on survival of young sockeye salmon at Cultus Lake. Journal of the Fisheries Research Board of Canada 5: 315–336.

Ricker, W.E. 1942. The rate of growth of bluegill sunfish in lakes of northern Indiana. Investigations of Indiana Lakes and Streams 2: 161–214.

Ricker, W.E. 1942. Creel census, population estimates and rate of exploitation of game fish in Shoe Lake, Indiana. Investigations of Indiana Lakes and Streams 2: 215–243.

Ricker, W.E. 1945. A method for estimating minimum size limits for obtaining maximum yield. Copeia 1945: 84–94.

Ricker, W.E. 1945. Abundance, exploitation and mortality of the fishes in two lakes. Investigations of Indiana Lakes and Streams 2: 345–448.

Ricker, W.E. 1946. Production and utilization of fish populations. Ecological Monographs 16: 373–391.

Anonymous. 1947. Editors: relax, please! American Scientist 35: 306–318.

Ricker, W.E. 1948. Methods of estimating vital statistics of fish populations. Indiana University Studies, Science Series No. 15: 101 pp.

Ricker, W.E. 1950. Cycle dominance among the Fraser sockeye. Ecology 31: 6–26.

Forester, R.E. & W.E. Ricker. 1953. The coho salmon of Cultus Lake and Sweltzer Creek. Journal of the Fisheries Research Board of Canada 10: 293–319.

Ricker, W.E. 1954. Stock and Recruitment. Journal of the Fisheries Research Board of Canada 11: 559–623.

Ricker, W.E. 1955. Fish and fishing in Spear Lake, Indiana. Investigations of Indiana Lakes and Streams 4: 117–161.

Ricker, W.E. 1955. *Review*: "The natural regulation of animal numbers," by D. Lack. Journal of Wildlife Management 19: 487–488.

Ricker, W.E. 1955. *Review*: "The distribution and abundance of annuals," by H.G. Andrewartha & L.C. Birch. Journal of Wildlife Management 19: 488–489.

Ricker, W.E. 1958. Maximum sustained yields from fluctuating environments and mixed stocks. Journal of the Fisheries Research Board of Canada 15: 991–1006.

Larkin, P.A. & W.E. Ricker. 1964. Canada's Pacific marine fisheries: past performance and future prospects. pp. 194–268. *In*: P.A. Larkin & W.E. Ricker (ed.) Inventory of the Natural Resources of British Columbia, British Columbia National Resource Conference, Victoria, B.C.

Ricker, W.E. 1969. Effects of size-selective mortality and sampling bias on estimates of growth, mortality, production, and yield. Journal of the Fisheries Research Board of Canada 26: 479–541.

Ricker, W.E. 1969. Food from the sea. pp. 87–108. *In*: P. Cloud (chair.) Resources and man, a study and recommendations, Report of the Committee on Resources and Man, U.S. National Academy of Sciences, W.H. Freeman and Co., San Francisco.

Ricker, W.E. 1972. Hereditary and environmental factors affecting certain salmonid populations. pp. 19–160. *In*: A. N. Other (editor) The Stock Concept in Pacific Salmon, University of British Columbia, H.R. McMillan Lectures in Fisheries, Vancouver, B.C.

Ricker, W.E. 1973. Linear regressions in fishery research. Journal of the Fisheries Research Board of Canada 30: 409–434.

Table 2. Continued.

Ricker, W.E. 1973. Two mechanisms that make it impossible to maintain peak-period yields from stocks of Pacific salmon and other fishes. Journal of the Fisheries Research Board of Canada 30: 1275–1286.
Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bulletin of the Fisheries Research Board of Canada No. 191: 382 pp.
Ricker, W.E. & H.D. Smith. 1975. A revised interpretation of the history of the Skeena River sockeye salmon. Journal of the Fisheries Research Board of Canada 32: 1369–1381.
Ricker, W.E. 1976. Review of the rate of growth and mortality of Pacific salmon in salt water, and noncatch mortality caused by fishing. Journal of the Fisheries Research Board of Canada 33: 1483–1524.
Ricker, W.E. 1981. Changes in the average size and average age of Pacific salmon. Canadian Journal of Fisheries and Aquatic Sciences 38: 1636–1656.
Ricker, W.E. 1984. Computation and uses of central trends lines. Canadian Journal of Zoology 62: 1897–1905.
Ricker, W.E. 1987. Effects of the fishery and of obstacles to migration on the abundance of Fraser River sockeye salmon (*Oncorhynchus nerka*). Canadian Technical Report of Fisheries and Aquatic Sciences No. 1522: 75 pp.
Ricker, W.E. 1992. Back-calculation of fish lengths based on proportionality between scale and length increments. Canadian Journal of Fisheries and Aquatic Sciences 49: 1018–1026.

(Table 1) includes more than the usual 10 items and may appear too long to the reader. However, the list may be useful for those starting out in biological sciences and we would prefer to err on the long side rather than the short side. Each item is self-explanatory, but we wanted to comment on a few. In one of Richard Fyneman's books, he comments that honesty in science is telling others what they need to know to make an intelligent decision. The opposite could range from advocacy to even dishonesty, where people are told what they need to know to agree with one's views. Bill Ricker was impeccably honest, in his science and in all aspects of his life. His sons commented that his early generalist education was the foundation for his interpretative ability in his career. Ranking as the number one science student entering university in Ontario in 1926 also was noteworthy (Ricker 2005c). It was also noteworthy that Bill Ricker never boasted about his intellectual abilities. It was after his death that his family found out that Bill was a gold medalist of his class, every year at high school. It helped that Bill Ricker's career corresponded to the time that fisheries science was evolving. But the most important reason for his influence was that he published extensively. A compilation of his publications includes 296 published papers and books, 238 published translations, and 148 scientific literary manuscripts (Ricker 2005). We believe that anyone considering a career in biological science should study Bill Ricker. If your educational institution does not provide this background then consider reading the papers in Table 2. Almost all are papers that Bill identified as highlights, but a few are our favorites. Biologists of all ages will enjoy his 1955 review of the books written by the fiercely competitive Lack and Andrewartha & Birch (Table 2). The 1972 paper on hereditary and environmental factors affecting salmonid populations remains as one of the best papers on the stock concept for Pacific salmon. The Hell's Gate slide in 1913–1914 was considered to be the cause of the decline of Pacific salmon. For another perspective, read Bill Ricker's 1987 paper. Bill Ricker knew the scientific literature. He was clear in his assumptions and he wrote them down. He was meticulous and used common sense and sound logic.

Bill Ricker received approximately 34 medals and awards (Table 3). These included three honorary doctoral degrees from the University of Manitoba, Dalhousie University, and the University of Guelph. The recognition that particularly pleased him was the naming of the Canadian Fisheries Research Vessel, the W.E. Ricker in 1986, the same year he was appointed as an officer of the Order of Canada. Bill Ricker's life is an inspiration to young people contemplating a career in biological sciences. Few could expect to achieve as much as he did, but everyone could learn from his approach to science. We believe that Bill Ricker and his contributions in science are the most practical illustration of science itself. Bill Ricker was an unassuming, gentle, humble man. He is one of those giants in science on whose shoulders future biologists will stand.

Table 3. Awards, medals and honours received by Bill Ricker.

North Bay Collegiate Institute – Goldpin (Form 2 to Form 3)	
North Bay Collegiate Institute – Goldpin (Form 3 to Form 4)	
North Bay Collegiate Institute – Goldpin (Junior Matriculation)	
North Bay Collegiate Institute – Goldpin (Honours, Matriculation)	
1926	Edward Blake Scholarship for Science
1930	British Association Advancement of Science (Commemoration of Meeting in Toronto, 1924) – Bronze Medal for Advancement of Science
1930	Victoria University – First in Science Medal (Gold)
1931	University of Toronto – Masters of Arts (M. A.)
1936	University of Toronto – Ph.D.
Pacific Biological Station – Mic-a-Mac Medal	
1955	The Wildlife Society – Outstanding Fish Ecology Management Award (for 1953/54)
1956	Royal Society of Canada – Elected as a Fellow Member
1956	International Association for Theoretical and Applied Limnology – Edgardo Baldi Lectureship Award
1960	The Wildlife Society – Outstanding Fish Ecology and Management Award (for 1959)
1966	Canadian Government – Professional Institute Public Service Medal (Gold) – for Meritorious Achievement
1967	Confederation of Canada (1867–1967) – (Silver)
1969	American Fisheries Society – Award of Excellence (Gold)
Victoria University (Univ. of Toronto) – 60th Anniversary Medal	
1970	Royal Society of Canada (Regalis Societas Canadensis MDCCCLXXXII) – Flavelle Medal (Gold) for Meritous Achievement
1970	University of Manitoba – Honourary Doctor of Science (D.Sc.)
1971	Government of Canada – Certificate of Service to Government of Canada
1973	Honourary Member, Canadian Society of Zoologists
1974	Dalhousie University – Honourary Doctor of Law (LL. D.)
Classic Citation Award – for publication "Stock and Recruitment"	
1983	Canadian Society of Zoologist – F. E. J. Fry Medal (Gold)
1985	Classic Citation Award – for publication "Linear Regressions in Fishery Research"
1985	Association Professional Biologists of British Columbia – Honourary Life Membership
1986	Governor General of Canada – Officer of the Order of Canada
Bootmakers of Toronto (Canadian Holmes) – Derrick Murdoch Award	
Entomological Society of British Columbia – Honourary Life Membership	
1990	Ecological Society of America – Eminent Ecologists Award
1990	Classic Citation Award – for textbook "Computation and Interpretation of Biological Statistics of Fish Populations"
1991	Victoria University Chancellor's Council – Certificate of Appreciation
1992	Canadian Government (Governor General) – Commemorative Medal and Certificate for the 125th Confederation of Canada
1992	Confederation 125th Year Medal
1992	International Society Plectopterist – Lifetime Achievement Award in recognition of outstanding life-long work with and contribution to Plecopterology and Fisheries Biology (Plaque, issued at the XI International Plecoptera Symposium at Tomahawk, Wisconsin)
1993	National Fishing Hall of Fame (World Recognition) "Outstanding Achievement in the Realm of Fresh Water Sport Angling"
1994	American Fisheries Research Institute Award
1995	North American Plectoptera Society – Rolling Stonefly News Award, for excellence in Plecoptera Research
Vancouver Public Aquarium – Murray A. Newman Award	
1996	University of Toronto Chancellor's Circle – 65th Anniversary of Graduation Medal (1930–1995), Bronze Medal
1998	University of Guelph – Honourary Doctor of Science (D.Sc.)
1998	University of Guelph Sigma Xi – Distinguished Canadian Science Award
American Fisheries Society (North Pacific International Chapter) – Worthy Coelacanth Award	
American Fisheries Society (Marine Fisheries Section) – Oscar Elton Sette Outstanding Marine Fishery Biologist Award	
American Association for Advancement Science – 50 Year Life MemberCertificate	
2001	Government of Canada – 5 NR Science Award to Leaders in Sustainable Development (provides scholarship funds to young promising scientists in Dr. W. E. Ricker's name)

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