Seafood industries around the world are under attack from mounting pressures due to dwindling resources and increased competition. The Atlantic Canadian industry, for example, has just been subjected to a 65,000 M.T. reduction from its scheduled 185,000 M.T. total allowable catch (TAC) for its tremendously important northern cod stock. Meanwhile, in the American market, cod is subjected to increasing competition from cheaper whitefish species, such as the Alaskan pollock and South American whiting. The results of these pressures has been a series of processing plant closures, a suspension of the offshore fishery, and, consequently, thousands of layoffs.

There are other challenges facing the world’s seafood industry. For example, the movement of “Europe 1992” wherein the countries of the European Economic Community will act within a common set of rules will have a profound effect, since one set of these rules will require seafood processors who are shipping into the EEC to meet the requirements of the ISO 9000 Series of quality requirements. Also, within countries, there are growing requirements for quality improvement efforts. An example is the Canadian government requirement for all seafood processing companies to have their quality programs approved under the government’s Quality Management Program by April 1992 as a condition of licensing and registration.

While there are considerable challenges, there are also opportunities. One example is the current Free Trade Agreement that exists between Canada and the United States and enables the lowering of tariffs on seafoods, therefore paving the way for the freer shipment of seafood products between the two countries.

All these changes are making it imperative for seafood processors to find ways to effect efficiency in their operations by reducing wastes and therefore
improving productivity, to effect significant quality improvements, and, overall, to therefore increase the profitability of their operations. Such improvements will have a profound effect on the viability of seafood industries worldwide. The American not-for-profit organization Second Harvest has been reported as having distributed to the needy some $700 million of foodstuffs in 1990. These foodstuffs were donated by food processing companies because, while being sanitary and safe, they failed to meet the product specifications in one way or another. While the efforts of Second Harvest are certainly laudable, the situation still points out the room for quality improvement and the reduction of waste that is available to American food processors. Situations like these are not limited to American food producers. Similar situations can be found throughout the world, and the seafood industry is certainly not immune to such wastes.

Following World War II, the Japanese were faced with the same challenge of quality improvement, for their reputation in the world markets was one of being a producer of “junk” products where the quality left much to be desired. The Japanese have made remarkable strides in this area and today enjoy the reputation of being one of the world’s top producers of quality products. In accomplishing this turnaround, the Japanese made use of techniques and concepts that are embodied in the discipline known as statistical quality control.

DEVELOPMENT OF STATISTICAL QUALITY CONTROL

While the Japanese made good use of the techniques of statistical quality control, they cannot be credited with their development. In fact, they were not new concepts and were developed in the United States.

In 1924, there was established at Western Electric (the manufacturing arm of the Bell System) an Inspection Engineering Department for the purpose of bringing about standardization and uniformity in telephone networks. This group later became known as the Quality Assurance Department of Bell Telephone Laboratories and included such people as Walter Shewhart, Harold Dodge, Harry Romig, G.D. Edwards, and later Joseph Juran. It was this group that created the idea of statistical quality control.

The discipline entailed two main elements: acceptance sampling and statistical process control.

In 1929, Harold F. Dodge and Harry G. Romig formulated a sampling inspection theory as a means of controlling consumer and producer risks within acceptable limits. This was measured in terms of the average outgoing quality limit (AOQL). World War II presented a problem to the United States that was summarized by Garvin (1988, 9) as “how to get large quanti-