The method of Formal Safety Assessment (FSA) was devised several years ago with the intent to help the International Maritime Organization (IMO) and other policy makers formulate policies and regulations by the proper use of the scientific method in matters pertaining to maritime safety and the protection of the marine environment. A host of FSA studies have been submitted over the last several years and have been reviewed by the IMO. Also, progress has been recently accomplished as regards incorporating environmental risk evaluation criteria within FSA. On the basis of these developments, revisions of the FSA guidelines have been proposed and adopted. This paper presents a review of the FSA method in light of these developments. This review updates an earlier review of FSA by Kontovas and Psaraftis [Marine Technol 46(1):45–59, (2009)]. It also takes this opportunity to identify some deficiencies of FSA, either due to an incorrect application of the method or to the method itself, and makes some suggestions for further action in this area.