Mercury (Hg) in its organic form methylmercury (MeHg) is a potent neurotoxin. The excessive exposure to Hg through the consumption of fish may pose a potential human health risk to consumers. Fish naturally accumulate Hg in their tissue, but may also accumulate Hg that is anthropogenically introduced into aquatic ecosystems. Hg has a high biomagnification potential, meaning that it increases in concentration through successive trophic levels in food webs. Therefore large, long lived fish species tend to have the highest concentrations of Hg in their tissue. Children are more susceptible than adults to the neurotoxic effects of MeHg. It is for this reason that health authorities in many parts of the world issue consumption advice, particularly for females of childbearing age and pregnant females. There is no consumption advice for the South African population. The purpose of this study was, therefore, to develop safe consumption advice for fish purchased in retail stores in South Africa. 282 fish belonging to 30 species were purchased from retail stores in Durban and Cape Town, and were analysed for total Hg in the muscle tissue of fish. Results were interpreted using guidance from the US Environmental Protection Agency. Results showed swordfish and bluenose to have the relatively highest Hg concentrations with a meal limit of one per month. German seabream and sardines have the lowest ranked Hg concentrations with meal limits of 36 and 108 per month, respectively.