The effect of frozen storage temperature on quality-related parameters of rainbow trout (Oncorhynchus mykiss) muscle was studied in the interval from -10 to -80°C on samples stored for 1 to 18 months. The following quantities were measured: drip loss, water holding capacity and water distribution, color, lipid oxidation (thiobarbituric acid-reactive substances, TBARS), and membrane stability (enzyme activity). No effect of temperature on drip loss, water holding capacity, water distribution, or membrane stability was observed for samples stored below -20°C, whereas storage at -40°C or lower compared to -30°C or higher resulted in a reduced level of secondary lipid oxidation (TBARS). No advantage was gained by using temperatures below -40°C for frozen storage of trout regarding any of the properties investigated.