Criteria Rainbow trout (*Oncorhynchus mykiss*) selection for cage culture in the Caspian Sea

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Abstract

Despite the limitations on aquatic resources in the world and excessive exploitation of these stocks due to fishing activities over the past decades, aquaculture activities have increased dramatically. In the meantime, the advances made in recognizing and controlling biology of the reproduction and breeding of aquatic species, and the creation of new technologies have provided a wider context for the development of the aquaculture industry. According to FAO's data (2014), a total of 580 species worldwide are used in the aquaculture industry. During the last decade, aquaculture with 5.8% annual growth, in addition to the greater share of inland aquaculture (65%), has seen the development of cage aquaculture. In response to the high pressure of the world's growing demand for aquatic products as well as climate change, recent decades have focused on marine aquaculture with a trend of about 6.7 million tons of marine aquaculture production in 2014, Shows the ascendancy in recent years. The selection of breeding species is one of the most prominent issues of breeding in cages. It is estimated that 40 different families of aquatic animals are currently grown in cages, of which only five (Salmonidae, Sparidae, Carangidea, Pangasiidae, Percidae) 90% and a family (Salmonidae) alone 66 percent of the total production. At the species level, there are around 80 species presently cultured in cages. Of those, one species (*Salmo salar*) accounts for about half (51 percent) of all cage culture production, and another four species (*Oncorhynchus mykiss*, *Seriola quinqueradiata*, *Pangasius* spp. and *Oncorhynchus kisutch*) account for about another one fourth (27 percent. Rainbow trout fish has a special place in the world's markets in terms of financial value and demand. On the other hand, due to the advances made in recent decades, there is enough knowledge to control reproduction and breeding practices that eliminate the concerns of providing fingerlings for cage storage. The purpose of this booklet is to introduce the Rainbow trout as a suggestion for cages in our country and to provide data about the biological, ecological, and current features of its aquaculture in the world.

Keywords: Aquaculture industry, Pen culture, Rainbow trout