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(Accepted 27 August 2001)



## Eel culture in Korea

### Abstract

There are 281 eel ponds in Korea, with a total surface area of up to 1,000,000 m<sup>2</sup>. Annual production of cultured eels was 10,000 mt in the early 1990s and decreased down to 7,000 mt in recent years. Fully-grown eels began to be imported from 1997 to fulfill the domestic demand and the amount of import was 3,086 mt in 1999. The culture techniques of eels are similar to those in the other eastern Asian countries. The eels are cultured in ponds in a green house. As winter is colder in Korea than in Japan and in Taiwan, water temperature is controlled by artificial heating during the cold months between October and April. About 10 mt of elvers were caught in the Korean estuaries in the early 1990s. This amount approximately corresponded to the need for the culture. Elver catch varied around 7 mt by the middle of 1990s. The catch amount sharply decreased down to 2 mt in 1998 during the El Nino year, 5.6 mt in 1999 and 2.8 mt in 2000. Elvers began to be imported from 1995, and the import increased to 2.4 mt in 1999 and 4.2 mt in 2000.

**Key words:** Eel culture, Eel production, Elvers, Eel culture technique

There are 281 eel ponds in Korea. More than 80% of these ponds are located at the southwestern region, Chonnam and Chonbuk Province. These regions have been historically favorable for aquaculture including eel culture. The winter is mild, ground water is rich for the eel culture, and large proportion of elvers were caught around these regions.

The total surface area of culture ponds is up to 1,000,000 m<sup>2</sup>. The surface area of an eel farm ranges from <1,000 to >10,000 m<sup>2</sup>, on average 4,300 m<sup>2</sup>.

### Annual production

Annual production was 10,000 mt in the early 1990s, declining in recent years. Production was

9,800 mt in 1992, decreasing to 7,000 mt in 1995, slightly increasing up to 8,000 mt in 1997 and less than 6,000 mt after 1998 (Fig. 1). Our annual demand of fully grown eels is over 8,000 mt. The fully grown eels began to be imported mainly from China in 1997 (185 mt), and the amount of import was 3,086 mt in 1999.

Large proportion of adolescent eels (about 50 mt) and fully grown eels (about 500 mt) were exported to Japan by the early 1990s. In the late 1980s, the elvers caught were over 10 mt, sufficient enough for the domestic demand and large proportion of elvers and adolescent eels were exported to Japan. By the middle of 1990s, about 50 mt of the adolescent eels and about 500 mt of fully grown eels were exported to Japan, but few in recent

years (Fig. 2). In these days, the domestic demand is larger than the domestic production. As shown

above, fully grown eels were imported to fulfill the demand.

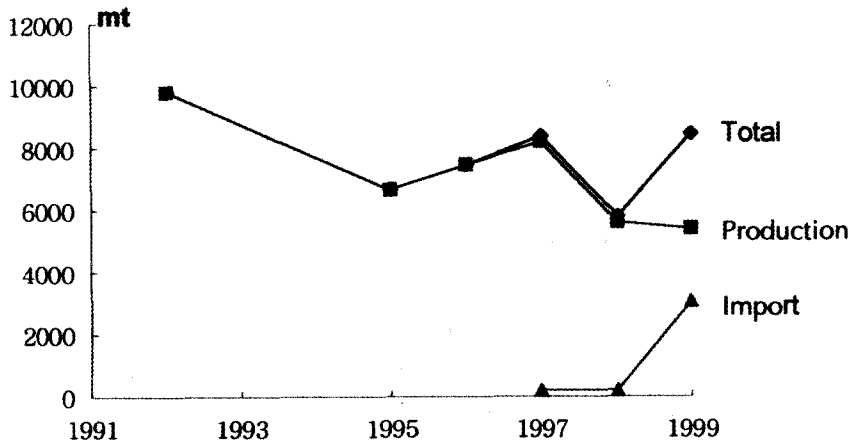


Fig. 1. Annual production (mt) of cultured eels in Korea and import of fully grown eels from 1991 to 1999.

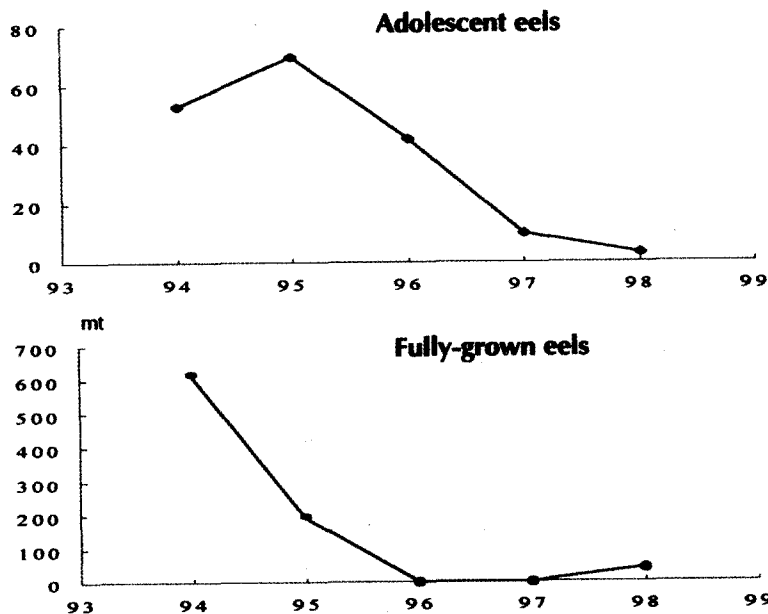


Fig. 2. Export of adolescent eels and fully grown eels (mt) of Korea from 1993 to 1998.

## Culture techniques

The culture techniques of eels are similar to those of the other eastern Asian countries. The eels are cultured in ponds in a green house. Water temperature is controlled by artificial heating during the cold months between October and April. As winter is colder in Korea than in Japan and in Taiwan, the duration of artificial heating period is longer than in the other countries.

The eels were fed principally with artificial feeds. Domestic feed was utilized by the early 1990s. Recently, the proportion of imported feed tend to increase attaining 30% of total feed in 1999 (Fig. 3).

We start to culture elvers in February. The proportion of cultured eels that reach the marketable size (ca. 200 g) is 15% in 7 mon , 55% in 10 mon and 95% in 12 mon. Growth rate of elvers caught in the Korean estuaries is known to be somewhat slower than the elvers in Taiwan.

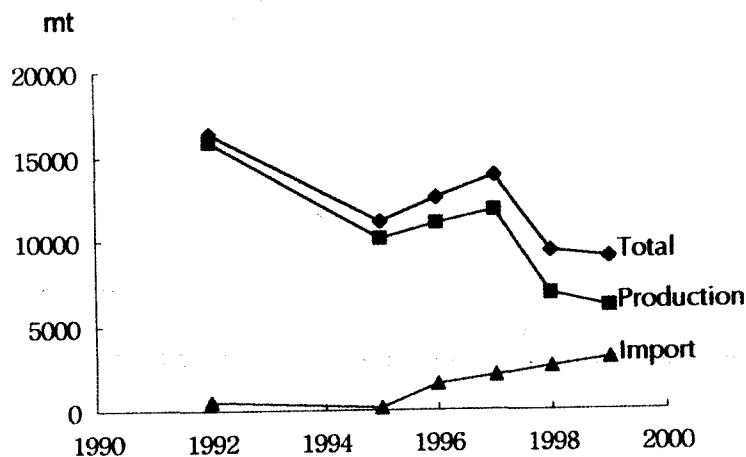


Fig. 3. Annual total, domestic production and import of feed from 1992 to 1999.

## Elver catch

Elvers were mainly caught with stow nets using the tidal currents in the southern and western estuaries where the tidal current is strong. The scoop nets were also used in the estuaries where the tidal current is not strong, like in Jeju Island.

About 10 mt of elvers were caught in the Korean estuaries in the early 1990s. This amount approximately corresponded to the need for the culture. Elver catch varied around 7 mt by the middle of 1990s. The catch amount sharply decreased down to 2 mt in 1998 during the El Nino year, 5.6 mt in

1999 and 2.8 mt in 2000 (Fig. 4). We began to import elvers from 1995, and the import increased to 2.4 mt in 1999 and 4.2 mt in 2000. The price of elvers was about \$1,000/kg by the early 1990s. It increased gradually attaining over \$10,000/ kg in 1998. But it dropped less than \$3,000 in 1999 as a result of the importation of elvers. The recent decline in elver catch was mainly related to the global climatic change, and partly related to the low price of elvers. Decline of elver catch and increase of the import of foreign elvers cause socioeconomic problems both for eel farmers and elver fishermen. We are trying to solve these socioeconomic problems in eel culture, and also need an international cooperation.

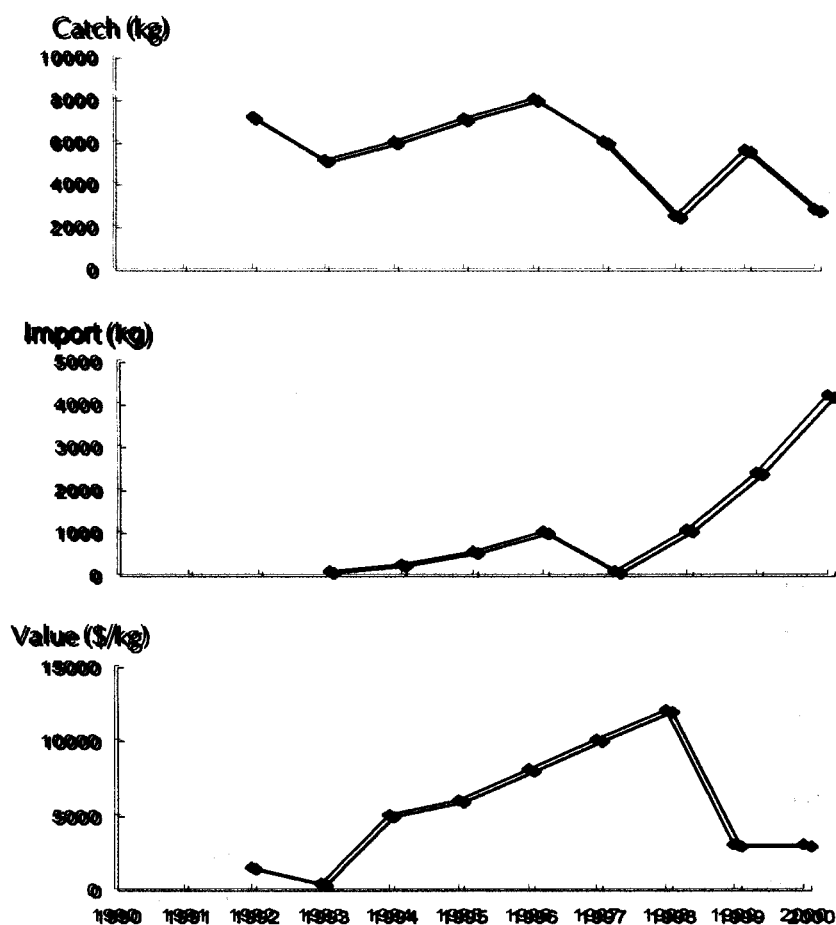


Fig. 4. Annual catch, import and value of eelers from 1992 to 2000.

### Association of Korean eel farmers

There are 145 members in the Association of Korean Eel Farmers, and 33 working staff. The main office is located

at Kwangju and there is a branch in Seoul. The main activity is to collect the information on eel culture and market, and to furnish them to the members. The association also does the economic activities such as marketing, processing, import and export, and credit.