

4. Eel consumption

Various eel species have been farmed, traded and consumed over the last decades and there is no data indicating species-specific consumption of Japanese eel. Estimated annual eel consumption in Japan has declined to ca. 50,000 tonnes in 2016 after reaching a peak of 160,000 tonnes in 2000-2002. As labelling of the name of eel species is not mandatory requirements for retailers and restaurants in Japan, consumers are not informed which eel species they buy and consume.

Historically Japan is considered to have been a largest consumer of eels, eels began to be consumed as Kabayaki (broiled eel) or Sushi outside Japan with the global expansion of Japanese cuisine.

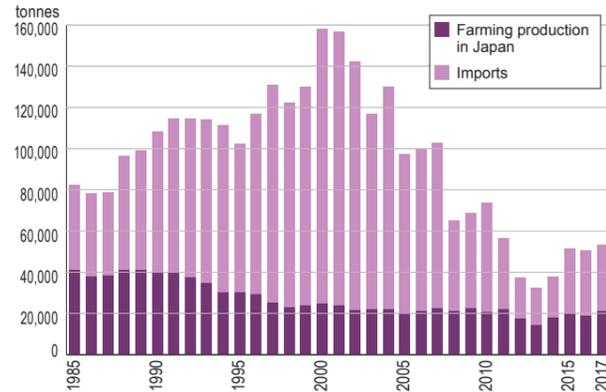


Figure 5. Estimated Anguilla eel consumption in Japan, 1985-2017, tonnes. Sources: Ministry of Agriculture, Forestry and Fisheries and Ministry of Finance, Japan Trade Statistics.

5. Recommendations for stock management (For National governments)

1 Regional stock management

- Input quota of glass eels should be set, linking to the actual catch amount, based both on the best verifiable scientific evidence and on the precautionary principle in East Asia.
- Legally binding framework such as regional fisheries management organizations for securing compliance with the above mentioned input quota should be introduced in East Asia. Hong Kong, which is a hub of glass eel trade, should be included in such framework, along with range states and territories.
- Make sure that glass eel imported into Japan is in accordance with the above mentioned framework and legal requirements on catch, internal trade and export of countries and regions concerned, with transparent measures, such as a scheme that prohibits import without any official documentation issued by range states and region.
- If those actions were not implemented, inclusion of Japanese eel in the Appendix II of the CITES (Convention on International Trade in Endangered Species of Wild

Fauna and Flora) should be considered, as an international trade regulatory measure, until robust and effective management measures are established and introduced.

2 Internal management on fishing and trading within Japan

- Considering stock status of Japanese eel is very bad, IUU fishery is prevalent, and Japanese eel is traded over prefectures, prefectural governors should be responsible for issuing licenses, not Ministry of Agriculture, Forestry and Fisheries, and internal trade rules should be unified in the country
- Catch Documentation Scheme (CDS) should be introduced, requiring all individuals and entities, who are engaged in glass eels trade from catch to input, to report information on who to catch, date of catch, date of trade, amount of catch and trade, and transactors electronically.
- Mandatory schemes should be introduced for indicating the name of eel species and the origin when eel products are sold or provided by retailers and at restaurants.

References

- Jacoby, D. & Gollock, M. 2014. *Anguilla japonica*. The IUCN Red List of Threatened Species 2014: e.T166184A1117791. <http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T166184A1117791.en>. Downloaded on 20 February 2019.
- Kaifu et al. (2018). Current activities and challenges for conservation and sustainable harvest of Japanese eel in Japan. *J-stage*, 68: 43-57. https://www.jstage.jst.go.jp/article/seitai/68/1/68_43/_pdf
- FAO (2019) <http://www.fao.org/fishery/statistics/global-capture-production/en>
- This is considered to exclude glass eel catch (i.e. just yellow eel and silver eel catch).
- http://www.jfa.maff.go.jp/j/saibai/pdf/140917unagi_data.pdf
- Shiraishi, H. and Crook, V. (2015). Eel market dynamics: an analysis of *Anguilla* production, trade and consumption in East Asia. TRAFFIC, Tokyo, JAPAN
- Fisheries Agency of Japan (2018). Outcome of Regional workshop on Japanese eel. <http://www.jfa.maff.go.jp/j/press/sign/180921.html>

- Fisheries Agency of Japan (2019). Situation and measures concerning eels (<http://www.jfa.maff.go.jp/j/saibai/unagi.html>)
- Estimated based on Fisheries Agency of Japan (2019), Situation and measures concerning eels (<http://www.jfa.maff.go.jp/j/saibai/unagi.html>)
- Kaifu (2019). Challenges in assessments of Japanese eel stock. *Marine Policy*, 102:1-4.
- Fisheries Agency of Japan (2018). Joint Press Release
- Fisheries Agency of Japan. Attachment of the Joint Press Release in 2017 (<http://www.jfa.maff.go.jp/j/press/sign/attach/pdf/170711-2.pdf>) and Attachment 1 of the Joint Press Release in 2018 (<http://www.jfa.maff.go.jp/j/press/sign/attach/pdf/180713-5.pdf>);

For more information

Oceans and Seafood Group Conservation Division
fish@wwf.or.jp Tel: +81-3-3769-1718
 WWF Japan
 Mita-kokusai Bldg. 3FL. 1-4-28 Mita Minato-ku,
 Tokyo 108-0073 Japan



FACT SHEET

APRIL
2019

WWF · Current Situation of Japanese Eel and Stock Management

Current Situation of Japanese Eel and Stock Management

Japanese eel is listed as Endangered on the IUCN Red List of Threatened Species and there are concerns over a significant depletion of stock. Countries and territories involved in harvest, farming, trade in the species, including Japan, a largest consumer of eels, are required to adopt and implement strict stock management measures immediately in order to ensure a recovery of Japanese eel resources.



1. Ecology of Japanese Eel

Japanese eel *Anguilla japonica* is a catadromous fish which has a spawning ground on the western side of the West Mariana islands of the Pacific Ocean and grows in marine, brackish and fresh water. It becomes small larvae called leptocephali after spawning and is transported by oceanic currents before reaching the continental shelf in East Asia as glass eel approximately six months later. Japanese Eel spend a few years to decades in habitats in marine, brackish and fresh water in East Asia as yellow eel, after which they become silver eel and return to the ocean to spawn. Populations of Japanese Eel have severely declined due to various threats including changing in oceanic currents, barriers in waterways like dams, the loss and deterioration of river habitat and over-exploitation¹. Resource management and conservation and recovery of habitats are important measures in order to achieve conservation and sustainable use of Japanese Eel². In addition, collaborative and coordinated approach to eel management and conservation

in the region is essential as Japanese eel is a panmictic species to be made up of one population and shared resources in East Asia.

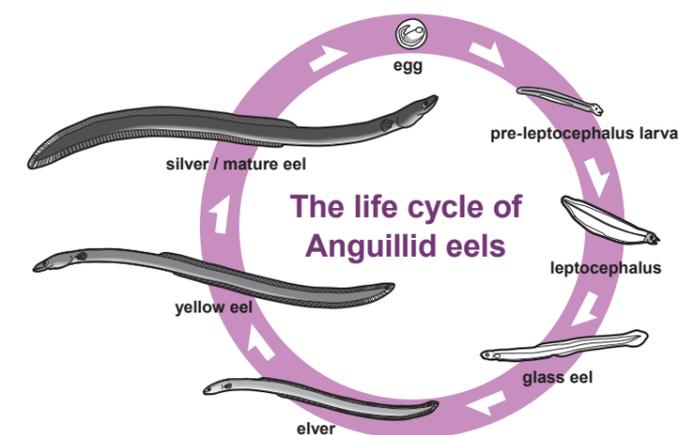


Figure 1. The life cycle of Anguillid eels. Source: WWF Japan. Based on Tsukamoto (2012). <https://www.wwf.or.jp/activities/basicinfo/3671.html>



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

www.wwf.or.jp

WWF. OR. JP

2. Harvest and farming production

There are two types of catch for Japanese eel: glass eels are harvested destined for farming and large eels (e.g. yellow eel/silver eel) are caught for direct consumption. Eel catch production for East Asia reached a peak at ca. 3,600 tonnes in 1969, after which it subsequently declined over the years (136 tonnes in 2016)³. Japan and South Korea are main fishing nations of yellow eel and silver eel in East Asia. In some parts of East Asia, conservation actions have been implemented including prohibition or restriction of silver eel catch from September to December when mature eels return to the ocean.

On the other hand, glass eel harvest in East Asia, which was estimated from input for farming (the amount of glass eels used for farming), declined significantly in recent years, though there were yearly fluctuation over the past decades.

Considerable declines have been observed as it declined to less than 25 tonnes in the 2012-2013 fishing season, before input for farming was restricted since the 2014-2015 fishing season (Input quota for East Asia region [=assumed catch limit] was set at 78.7 tonnes since the 2014-2015 fishing season.).

Farming production of Japanese eel seems to be in decline along with decline in glass eel input for farming (All eel farming relies on wild-caught glass eels). According to the Joint Statement in 2014, farming production of Japanese eel in East Asia dropped from ca. 90,000 tonnes in 2010 to 36,000 tonnes in 2012⁵. Although each country/territory reports its farming production to FAO, the reported farming production is considered to be overestimated and the accurate farming production in the region is unclear⁶.

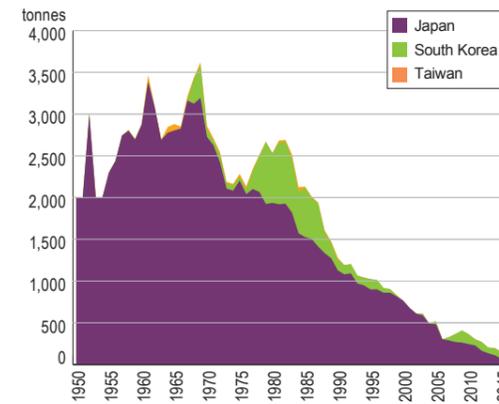


Figure 2: Japanese eel catch production⁴, 1950-2015, tonnes. Source: FAO Fisheries Production.

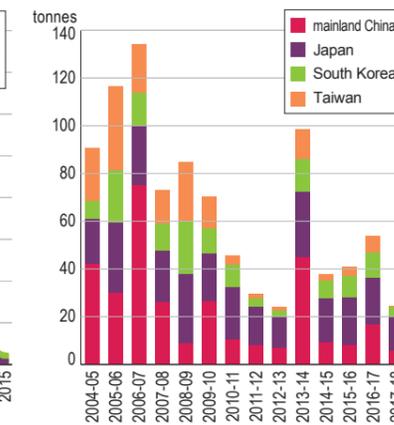


Figure 3: Estimated *A. japonica* glass eels input for farming in Japan, mainland China, South Korea and Taiwan Source: Joint Statement (2014), Joint Press Release (2017; 2018) and Nihon Yoshoku Simbun (data for China for 2017-2018)

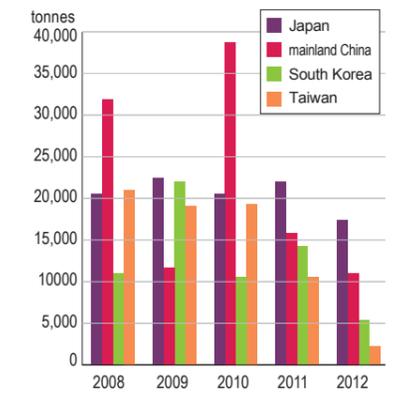


Figure 4. *A. japonica* farming production in Japan, mainland China, South Korea and Taiwan, 2008-2012, tonnes. Source: Joint statement (2014).

3. Current situation and problems of catch, farming and trade

1 Lack of Regional Fisheries Management Organizations (RFMOs)

While collaborative and coordinated approach to eel management and conservation among countries and territories involved in harvest is essential for stock management as Japanese eel is a panmictic species to be made up of one population and shared resources in East Asia, there is no mechanism for facilitating cooperation between the countries/territories such as regional fisheries management organizations. Japan, China, South Korea and Taiwan set input quota since 2014 when they released “Joint Statement on International Cooperation for Conservation and Management of *A. japonica* and other relevant *Anguilla* spp.” which is not legally binding.

2 Lack of scientific evidence for input quota

When deciding input quota for farming in 2014, Japan, China, South Korea and Taiwan agreed that input for the next season ‘will be no more than 80% of that of the 2013-2014 input season’. The same annual input quota has been renewed up until the 2019-2020 fishing season, without any scientific evidence. Since the catch amounts have never reached this quota from 2014, when the input quota was set, effectiveness of the quota is questionable. As stock assessment of Japanese eel has not been conducted, it is difficult to adopt management measures based on the stock assessment. Although regional workshop on Japanese eel was held in September 2018 for the first time in order to review scientific data and information each range country/territory has⁷, China, one of largest harvester of Japanese eel, did not participate and stock assessments have not been scheduled. It is crucial for the countries/territories to make further effort in order to set catch/input quota based on science.

3 Illegal, Unreported and Unregulated (IUU) fishing

Illegal, unreported and unregulated (IUU) fishing of glass eel is a serious problem in East Asia, which is partially due to high demand for glass eel of Japanese eel and its high price. As stocks have declined, the price of glass eels keeps rising, with trading price in Japan reaching ca. JPY 3 million (USD 27,600) per kg in the 2017-2018 fishing season⁸. While more than 18,000 people are reportedly involved with harvest of glass eels in Japan, there is a large discrepancy between reported harvest to the governments and actual harvest; as much as 3.6 tonnes among fishing amount of 9.8 tonnes is estimated to be from IUU fishing in the 2017-2018 fishing season⁹. If it would have been traded at JPY 3 million per kg, JPY 10 billion (USD 91,940) would be estimated to have been sourced from IUU fishing. Combatting IUU fishing is also important in terms of resource management as prevalence of IUU fishing prevents collecting information on when and where glass eels are actually caught. In Taiwan, although the fishing season is set (from November to February next year), no other management measures are in place to ensure sustainable harvest of glass eels.

4 Illegal trade and lack of traceability

In addition to IUU fishing, glass eels of Japanese eel are traded illegally internally and internationally. As Japanese eel is farmed in each East Asian country/territory and glass eels are important ‘seed’ for farming, exports of glass eels are prohibited in Japan and Taiwan during fishing seasons and exports of glass eels need prior approval from authorities in mainland China. However, a significant amount of glass eels is considered to be traded illegally against these trade regulations due to high demand. For example, Japan imports a considerable amount of glass eels from Hong Kong where no glass eels fishing exists, most of which appear to be sourced from Taiwan. In addition, although some prefectures in Japan have trade regulations of glass eels (e.g. designation of a dealer to sell glass eels, prohibition of transferring glass eels outside the prefecture), illegal trade against these restrictions¹⁰. Currently, prevalence of illegal harvest and trade has further hampered traceability from catch to eel farms.



Eel farm in Kagoshima, Japan

5 Monitoring and control over eel farms

As all the glass eels caught are farmed for grow out for certain time before traded and/or processed for consumption, eel farms play an important role in ensuring legality and traceability of eels. Licence is required for eel farming in Japan and Taiwan, and South Korea is also reportedly adopting a relevant legislation¹¹. On the other hand, despite the input limit, the number of eel farmers or the scale of eel farms seem to be in increase in China, South Korea and Taiwan, rather than reducing the overcapacity¹². In addition, limited availability of glass eels of Japanese eels has led to use of other *Anguilla* spp. for farming in some parts of East Asia. As some of them have also experienced stock depletion and exports of some species are banned or regulated (e.g. European eel), eel farmers are required to input, farm and output eels which came from sustainable, legal and traceable sources.