Lemon sole

Lemon sole, *Microtomus kitt*, is one of the most valuable domestic flatfish species, per unit weight, on the UK market and is a popular fish choice. It belongs to the plaice family (*Pleuronectidae*). In the North Sea landings have averaged 3,000 – 5,000 t. Landings in 2010 were at a series low of 2,625 t, but increased in 2011 to 3,365 t.

**Biology**

Lemon sole is a demersal species usually found on stony bottoms from depths of 20m to 200m. It feeds on worms, crustaceans and molluscs. Lemon sole, like sole and plaice, metamorphose during their life from swimming upright larvae to flatfish as adults. The spawning areas have not been fully identified, but spawning takes place in the spring.

**Fisheries and gears**

Lemon sole are targeted using otter trawls in the spring and summer, however the main catch by weight is as a bycatch in mixed demersal beam trawl fisheries.

**Stock assessment**

On a Europe-wide basis the fishery is not considered to be of sufficient economic value to warrant annual assessment and species specific management measures. Lemon sole is of considerable economic importance to fisheries in the South West of England. However, little research has been undertaken into the population characteristics and stock structure of lemon sole in this area.

The Centre for Environment, Fisheries and Aquaculture Science (CEFAS) (1) in the UK, and the Fisheries Research Services (FRS) (2) in Scotland conduct annual surveys in which lemon sole are routinely measured or biological information is retained. The results of the Cefas surveys are described in the ICES Working Group on Assessment of New MoU Species (WGNEW). The latest ICES advice is from the 2013 WGNEW report (3) and advice issued in June 2013 (4) for subarea IV and divisions IIIa and VIIId:

- Irish and Celtic Sea (ICES VIIa, f and g) abundance declined since 2003.
- Eastern English Channel (ICES VIIId) abundance has been variable with large peaks in 1995 and 2011 and small peaks in 2002, 2004 and 2008.
- West English Channel (ICES VIIe) abundance decreased since 2004, but has increased again.
- In the North Sea (ICES IVa, b and c) abundance has generally increased through the time series, mature biomass is variable but at a high level for 20 years. The stock size indicator for 2010–2012 is 16% higher than the average of the five previous years.
- In Icelandic waters stock levels were high from 2003-2010, lower in 2011 and 2012, and high again in 2013. Fishing mortality is currently high (5).
Distribution

Lemon sole are found in the shelf waters of the North East Atlantic from the White Sea and Iceland south to the Bay of Biscay. They are common in the North Sea and are widely distributed throughout the British Isles, particularly in the Celtic Sea, the western English Channel, the western approaches and the Irish Sea.

Management and conservation

Unlike sole and plaice there is no minimum landing size for lemon sole, therefore it is permitted to land lemon sole of all sizes. However the European Commission has set a Minimum Marketing Standard for lemon sole at 180g/25cm. This means it can only be marketed when heavier than this weight.

Total Allowable Catches (TACs)

Precautionary TACs based on previous years catches are set:
- There is no TAC for the Celtic Sea, western English Channel, western approaches and the Irish Sea.
- There is a joint TAC (6) for lemon sole and witch flounder in the North Sea and Norwegian waters (IIa and IV). TAC was 6,175 t (2006/7), 6,793 t (2008/9), 6,521 t (2010), and 6,391 t (2011/2012). The UK has over 60% of the TAC. Based on ICES approach for data limited stocks, ICES advises (4) that landings should <4,350 t in 2014 and 2015 (<16% increase in landings over last three year average). The TAC for 2014 has been set at 6,391 t.
- There is also a quota in Icelandic waters. In 2012 landings were 1,600 t (1,900 t in 2011, 2,000 in 2010, 2,635 t in 2009). A TAC of 1,600 t has been recommended for the quota year 2013/2014 (5).

Product Characteristics

Lemon sole is a round, reddish brown flatfish with a white underside. It normally reaches a maximum length of 70cm. It has a deep oval body with a small head and a very small mouth. The fish is marketed fresh and frozen.

Supply chain standards

There are supply chain standards:
- **Seafish Responsible Fishing Scheme.** Sets best practice standards for fishing vessels: (BSi: PAS 72:2006).
- **British Retail Consortium (BRC) Global Standard/Safe and Local Supplier Approval (SALSA) certification.** Designed to raise standards in the seafood processing and wholesaling sectors.

References and sources

1. http://www.cefas.co.uk
2. http://www.marlab.co.uk
4. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2013/lem-nsea.pdf
*EU legislation see: http://europa.eu

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