LUMPFISH IN DIVISIONS 3K, 3L AND 3Ps

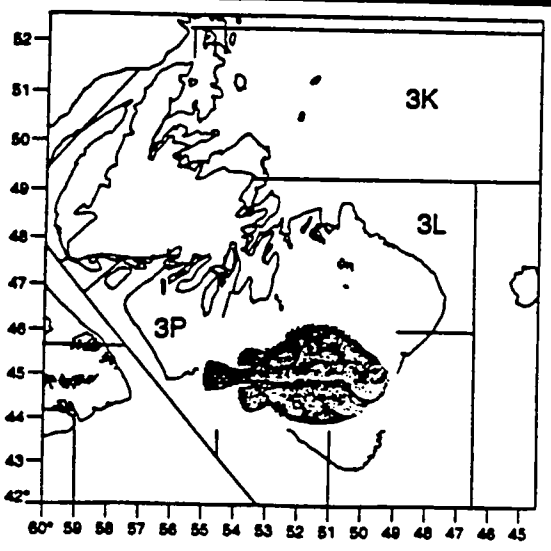
Background

Lumpfish (Cyclopterus lumpus) are found on both sides of the North Atlantic in cold to temperate coastal waters. They are primarily a bottom dwelling species but have been reported to be semi-pelagic during early life.

Spawning takes place during the spring in Newfoundland waters and continues into the summer. The preferred spawning grounds are shallow water rocky shores with abundant sea-weed growth. After the egg masses have been deposited, the females leave and the smaller, now reddish colored males, are left to guard them. Initially growth is relatively fast, with the fish doubling in length within one month. Length can range between 50 and 75 mm (2 to 3 inches) by the first year of age. Some data have shown that females continue to grow fast up to age 5 where they can reach a size of 30 cm (12 inches). After age 5 growth slows. Large females have been reported up to 60 cm (24 inches) and weighing almost 10 kg (18 pounds).

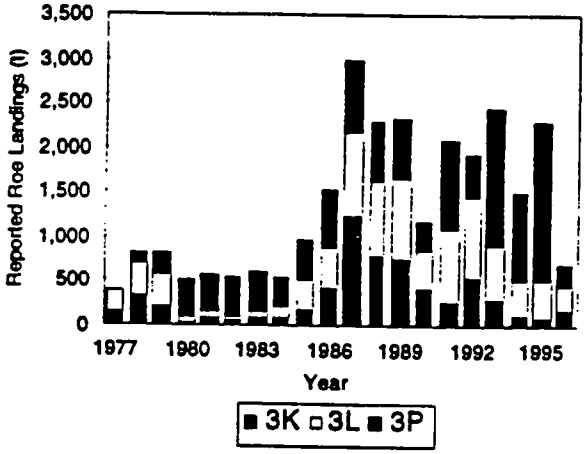
Lumpfish feed on a wide variety of invertebrates such as euphausiids, pelagic amphipods, copepods, other small crustaceans, jellyfish and some small fish such as herring and sand lance. Lumpfish are readily eaten by seals. They have also been found in stomachs of Greenland sharks.

The Canadian fishery for lumpfish started in the late 1960s and is primarily based on roe, the unfertilized eggs. Eighty percent of the landings are reported by vessels less than 35 feet.



The Fishery

The commercial fishery for lumpfish roe began in Newfoundland in 1969, developing slowly for the first number of years. Catches gradually increased to around 500 metric tons through 1984. For the next three years there was a doubling of the landings to a peak of 3,000 metric tons in 1987. Landings averaged 2,000 metric tons from 1988 to 1995.



Roe Landings (thousand metric tons)

Year	77-90 Avg.	1992	1993[1]	1994[1]	1995[1]	1996[1]
Can.[2]	1	2	2	2	2	.7

[1] Provisional
[2] Management since 1992 through effort controls

There was a reduction in landings reported in 1996 to 700 metric tons; however these data are very preliminary .

The fishery was predominantly in Division 3K in the late 1980s. Catch in this area declined to less than 5% of the combined landings in divisions 3KLPs by 1995.

Resource Status

Research survey **indices of biomass** have been calculated separately for NAFO divisions 3K and 3L for 1981-1994 and 1981-1996 for Subdivision 3Ps. Fall survey estimates have fluctuated between years in divisions 3K and 3L, but have shown no trend over time.

In Subdivision 3Ps, the surveys have occurred at different times between January to June. Biomass estimates from the 3Ps surveys have declined an order of magnitude from 1985 to 1995. The biomass estimate for 1996 is the lowest since the early 1980s.

Inshore Fishery Improvement Committees have expressed concern over low catch rates along the northeast coast.

Conversations with fishers from Trinity bay have indicated catch rates of less than a lumpfish per net and many fishers stopped fishing before the end of the season.

Information from **marine study sites** (Memorial University) in Conception Bay has indicated a dramatic decrease in the number of lumpfish nests.

Port samplers in NAFO Subdivision 3Ps have reported catch rates at the lowest level since the fishery started in the 1970s .

Sources of Uncertainty

Growth rates, ages, natural mortality rates and productivity of this resource are all unknown. In addition, the stock structure of this species is not known and little work has been done to resolve this. Also, there is only limited information regarding migration patterns.

Outlook

The lumpfish fishery is exclusively on pre-spawning mature females and therefore the spawning stock is vulnerable to over-exploitation. Since the cod moratorium there has been an increase in fishers entering this fishery. Division 3K has displayed a decline in catch and catch rates. The 1996 catch from this area, although about double that of 1995 is still below the average of the 1990s. Also, it is unknown how much additional effort may have been exerted. In Subdivision 3Ps, survey indices have gone down since the mid-1980s and catch rates are at an all time low.

Overall, there is concern that the resource is declining, especially along the northeast coast. Steps should be taken to reduce effort and overall catches in order to halt the decline and allow for rebuilding.

Other conservation measures such as closure of portions of the spawning areas should also be considered.

For More Information

Research Document: Hoenig, J.M. 1995. What can we learn about lumpfish mortality from sex ratio data? DFO Atl. Res. Doc. 95/62.

Myers, R.A. and B. Sjare. 1995. An analysis of lumpfish from data on individual fishermen. DFO Atl. Res. Doc. 95/66.

Stansbury, D.E., E.F. Murphy and C.A. Bishop. 1995. An update of the stock status of 3KLP lumpfish. DFO Atl. Res. Doc. 95/65.

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