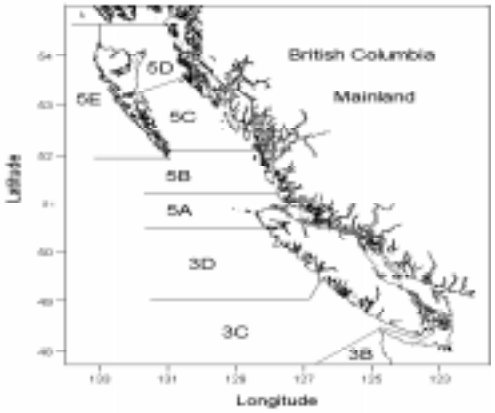
Rock Sole Queen Charlotte Sound (Areas 5A/B) And Hecate Strait (Areas 5C/D)

Background

The rock sole (Lepidopsetta bilineata) is one of the important flatfishes caught in the commercial trawl fishery off British Columbia. Rock sole range from southern California to the Bering and Okhotsk seas, and throughout the Sea of Japan. At the present time separate 'northern' and 'southern' sub-species are recognized. It is predominately the 'southern' sub-species that occupies the waters off British Columbia.

Discrete stocks have been identified off the northern British Columbia coast, in Queen Charlotte Sound (Areas 5A/5B) and in Hecate Strait (Areas 5C/D). The species is not migratory, shows preference for gravel substrate and occupies depths from 10-120 metres. The adults are piscavores while the juveniles feed primarily on small benthic invertebrates.

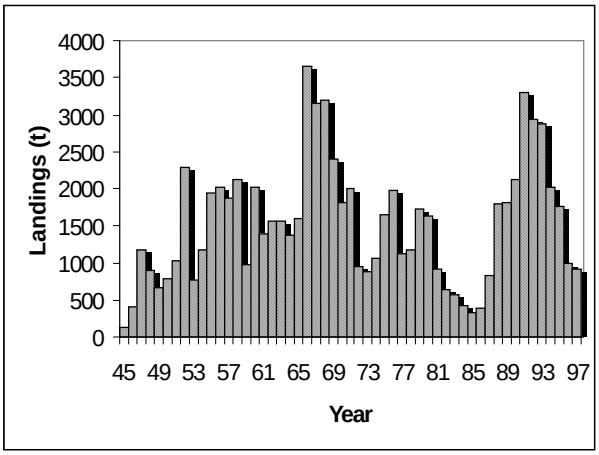
Rock sole live as long as 21 years and recruit to the commercial fishery at about four years of age. They have evolved to spawn many times over the course of their lifetime. Males begin to spawn at about three years of age while females begin to spawn at about four years of age. The commercial fishery for rock sole was unregulated prior to 1980. In the 1980s and early 1990s, monthly vessel trip limits were imposed. More recently, individual vessel quotas were established. Recent analyses suggest that rock sole abundance increased during the late 1980s and early 1990s but had declined by the mid 1990s due to declining recruitment.



Groundfish Management Areas off the West Coast of Canada

The Fishery

Landings from the commercial fishery for rock sole increased from 100 t in the mid 1940s to more than 3,000 t by the late 1960s. Landings have fluctuated between 500 and 3,500 t since that time. Rock sole are caught in a directed trawl fishery and are a minor component in the Pacific cod fishery.



Annual landings of rock sole in B.C.

Canada

The fishery involved both Canadian and United States vessels until 1977 when Canada declared extended jurisdiction over its offshore resources. Subsequently, the fishery has been exclusively Canadian. The most significant fishery for rock sole occurs in Hecate Strait, which lies between the B.C. mainland coast and the Queen Charlotte Islands.

Landings of rock sole from Areas 5A/B and 5C/D have recently declined. All stock indices show a corresponding decline in abundance. The decline is attributed to both fishery and environmental effects. Warmer ocean temperatures during the recent El Niño event may have led to a decline in recruitment in recent years.

Resource Status

Rock sole stocks are considered to be at a level above the long-term average for the last 40 years. However, recruitment has declined in recent years.

The assessment for Queen Charlotte Sound is based on analysis of size composition data from the commercial fishery. The assessment for Hecate Strait is based on analysis of age composition data obtained from the commercial fishery and data collected during biannual research trawl surveys.

A multi-species trawl survey has been conducted in Hecate Strait since the mid-1980s. The purpose of this work is to assess the abundance of rock sole and other groundfish species in the region. Survey results indicate that there was an overall increase in the abundance of rock sole after 1987. Survey catch rates for rock sole have declined slightly since that time. Biological data collected from the surveys and the fishery indicate that the proportion of young fish in the population increased in the late 1980s and early 1990s, and has been declining since 1991.

The abundance of rock sole stocks in Hecate Strait has fluctuated cyclically over time. Scientists believe that these fluctuations are mainly a response to variability in the ocean environment. An increase in the mortality rate of juvenile rock sole has been apparent in the declining number of fish recruiting to the fishery over the last several years.

Outlook

Abundance indices for the Area 5A and 5B stocks indicate declines since the early 1990s. Abundance is not expected to increase in the immediate future because of unfavourable ocean temperature conditions.

In Hecate Strait, unusually warm ocean conditions in recent years may have resulted in an increase in the mortality rate of juvenile rock sole. The decline of the strong year classes that recruited in the late 1980s is coincident with decreasing abundance for this stock. This is indicated by trends in both the commercial and research survey CPUE indices. Because of this abundance, rock sole will probably continue to decline over the next two to three years.

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