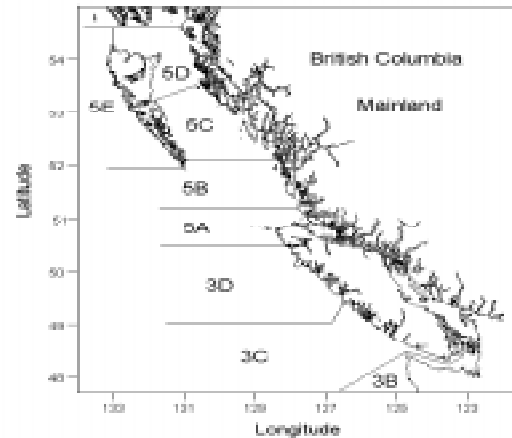


Petrале Sole British Columbia (Areas 3C-5D).



The Fishery

Prior to 1977, the fishery involved both U.S. and Canadian vessels (Ketchen and Forrester 1966). The U.S. fleet, working in Canadian waters, expanded to deep-water in the early 1950s. When this occurred, large concentrations of spawning Petrale sole were discovered off the west coast of Vancouver Island. As a result, the stock sustained a high fishing mortality. Subsequent to extended jurisdiction in 1977, U.S. trawlers were not permitted to fish in Canadian waters. In the 1950s and 1960s the Canadian fishery was limited mainly to Hecate Strait during the spring and fall. In the 1970s the Canadian fleet expanded to other areas of the coast, but it was not until the late 1980s that a deepwater fishery developed.

Since 1995, only Petrale sole caught incidentally in the multi-species trawl fisheries off the west coast of Vancouver Island (Areas 3C,D) and Queen Charlotte Sound (Areas 5A,B) have been landed.

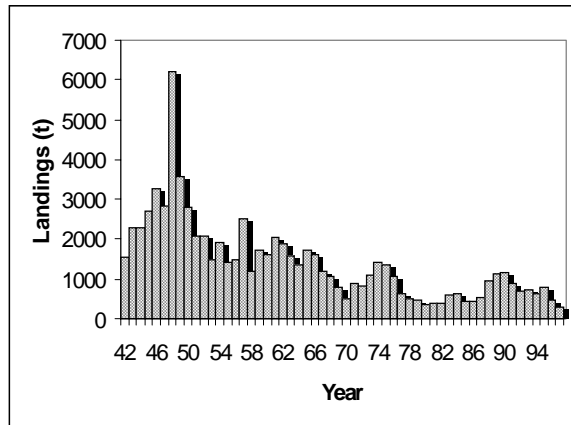
Background

Historically, Petrale sole (*Eopsetta jordani*) was one of the important flatfishes caught in the commercial trawl fishery off British Columbia. Petrale sole range from Baja California to the Bering Sea (Kramer et al. 1995). In British Columbia, the species is near the northern limit of its commercial abundance.

Two discrete stocks have been identified off the British Columbia coast, one off the southwest coast of Vancouver Island (Area 3C) and another off the northwest coast of Vancouver Island (Area 3D), Queen Charlotte Sound (Areas 5A/5B) and Hecate Strait (Areas 5C/D). Petrale sole show a preference for sand or gravel substrate. Adult Petrale sole occupy depths from 80-500 metres.

Petrале sole live as long as 30 years and recruit to the commercial fishery at about four to five years of age. They have evolved to spawn many times over the course of their lifetime and spawn in deepwater (200-500 metres) off the west coast of Vancouver Island. Males begin to spawn at three to four years of age while females begin to spawn at four to five years of age.

Directed fishing for Petrale sole is now prohibited. Petrale sole abundance was high during the 1940s and 1950s but has declined dramatically since that time, probably a result of heavy fishing pressure. Recruitment to these stocks has been low for more than a decade.



Annual landings of Petrale sole in B.C. between 1942 and 1997.

Coastwide landings from the commercial fishery for Petrale sole peaked at 6,200 t in 1948. Since 1965, landings have never been above 2,000 t. Landings in 1997 amounted to 300 t.

The low landings of Petrale sole in recent years are due to the non-directed fishery. The fluctuations in landings prior to that time were attributed to both the fishery and environmental variability.

Resource Status

Stock assessment of Petrale sole is hampered by the lack of catch-effort and biological data. These data were not collected from the U.S. fishery. Petrale sole stocks are currently assessed using data obtained from biological sampling of the fishery. Both size and age composition data have been used for the assessment.

At present, Petrale sole stocks are at a low level of abundance. Biological data for the 1980-95 period indicates a progressive decline in the proportion of young fish recruiting to the fishery

annually. Scientists are concerned that this may be linked to the low spawning biomass (Fargo and Kronlund 1997).

It is believed that the fluctuations in abundance for this species in the past have been due largely to variations in the ocean environment (Ketchen and Forrester 1966). However, these stocks are at the lowest level of abundance in 50 years. The decline in abundance since the 1960s may be due to the high fishing mortality the stock sustained in the 1960s. This was a result of the extensive U.S. deepwater fishery on spawning aggregations. At present, no directed fishery on these stocks is permitted.

Outlook

The increase in ocean temperature during El Niño events in the mid 1980s and mid 1990s was expected to have a positive effect on recruitment/abundance of these stocks. The fact that this did not occur is cause for concern. Recruitment overfishing may have occurred.

If the current low recruitment is due to low spawning biomass, prohibition of a directed fishery on these stocks will continue as a remedial measure. If recruitment overfishing has occurred, it will be at least a decade before these stocks recover.

For More Information contact:

Contact: Jeff Fargo
 Stock Assessment Division
 Pacific Biological Station
 Nanaimo, B. C. V9R 5K6
 Phone:(250) 756-7165
 Fax: (250) 756-7053
 Email:fargoj@dfo-mpo.gc.ca

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Phone: (250) 756-7208
Fax: (250) 756-7209
Email: miltond@dfo-mpo.gc.ca

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