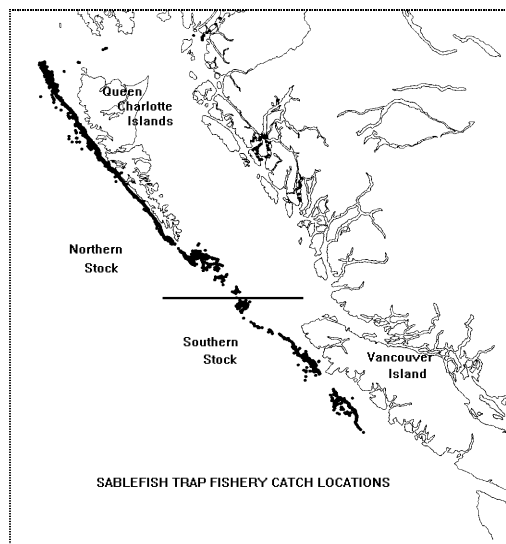


Sablefish

Background

Sablefish (*Anoplopoma fimbria*), often referred to as Blackcod, inhabit shelf and slope water to depths greater than 1500 m, from central Baja California to Japan and the Bering Sea. Although genetic studies suggest a single population throughout their range, movement of adults is limited enough to allow assessment and management on a smaller scale. Differing patterns in recruitment and growth indicate the presence of two stocks in the British Columbia waters. The U.S. National Marine Fisheries Service carries out assessments of U.S. stocks

The species spawns from January to March along the continental shelf at depths greater than 1000 m. Larval sablefish are found in surface waters over the shelf and slope in April and May. Juveniles migrate inshore over the following six months and rear in nearshore and shelf habitats until age 2-5, when they migrate offshore and into the fishery. Juveniles are highly migratory, travelling from nursery areas in Hecate Strait to Alaska. Growth is rapid, with mature females reaching an average length of 55 cm, and a maximum of 80 cm, in 3 to 5 years. The oldest fish aged to date is 113 years. Age, growth and maturity parameters vary considerably among areas and depths. Recruitment rates also vary, with the strongest years occurring when environmental conditions are favourable.



Summary

- The assessment which is based on a combined mark/recapture age-structured model, indicates that the current stock size is stable or declining slightly and estimated at 43,400 to 51,300 t.
- A yield range of 2,977 to 5,052 t was recommended based on potential levels of recruitment and varying target fishing mortality rates.
- Current stock size is well determined, but there is considerable uncertainty in the stock reconstruction due to differing results based on two tagging data sets and the selectivity of males.
- Evidence from recent research and anecdotal reports suggests recruitment has improved in recent years.

The Fishery

Average Canadian Catch (t)

1960-69	1970-79	1980-89	1990-97
1316	5124	4456	4607

Sablefish have a long history of exploitation with the first recorded landings in 1913. Foreign fishing was conducted from 1961 to 1981 and phased out after the declaration of the 200-mile fishery conservation zone in 1977.

The domestic fishery uses longline Korean traps, landing modest amounts using longline-hooks and trawl nets. The longline fisheries are deepwater, targeting depths between 300 and 1000 m. Sablefish longline fishers are regulated under a “K” tab licence and can employ hooks or traps. This fishery has operated under an Individual Transferable Quota system (ITQ) since 1990.

All research, management and enforcement costs are recovered from industry. The trawl fishery is allocated approximately 8% of the available quota.

The sablefish fishery continues to be one of B.C.’s most important. In 1997, 4087 t were landed, worth an estimated \$25 million. The majority of the product is headed/gutted using a “J” cut, frozen at sea, and exported to Japanese markets.

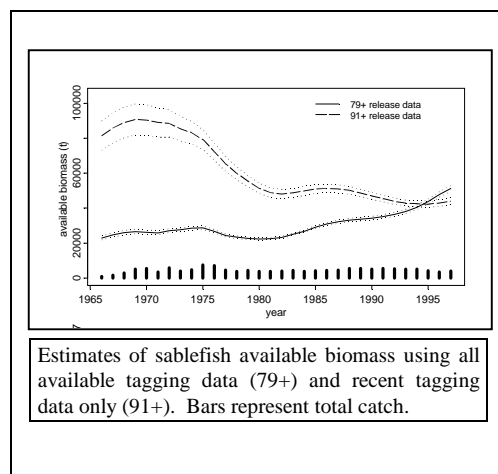
Resource Status

Assessments use a new integrated catch-at-age/mark recapture model to estimate the current stock size and reconstruct the history of the stock. Data sources include catch from longline, trawl and trap fisheries, catch-at-age from the trap fishery between

1980 and 95, and release/recapture data from tagging programs conducted in 1979-82 and 1991-97.

More realistic modeling of the complex life history of sablefish and a successful recent tagging program have narrowed the estimated range of current stock size considerably. Coastwide available biomass in 1997 ranges from 43,400 t to 51,300 t.

There remains some concern that two time series of tagging data produce different histories of stock abundance. In addition, future assessments will require more recent age data to improve confidence in the stock reconstructions and recruitment estimates used in projections of abundance. Age estimates have been postponed while ageing methods are reviewed.



Outlook

DFO conducted deterministic stock projections for the years 1998 through 2006, for 3 fixed levels of recruitment and 3 fixed levels of fishing mortality. The recruitment levels were; 0.6, 1.0, and 1.4 times the mean of the 1966-1994 estimates. The region-specific F levels were; 0.8, 1.0, and 1.2 times the 1997 estimates. In all but the high recruitment scenarios, the biomass is stable

or declining slightly. The range of recommended yields for 1999 was 2980t to 5050t.

Although the lack of recent ageing data hinders projections, there are indications that recruitment has improved in recent years. The available age compositions and larval surveys provide evidence of an above average year class around 1990. Studies of juvenile by-catch in the trawl fishery and anecdotal reports from sablefish fishers indicate that the 1997 class may be above average. These observations are consistent with recent indications of a shift to more favourable environmental conditions linked to climate change.

For more information contact:

Contact: Mark Saunders
 Stock Assessment Division
 Pacific Biological Station
 Nanaimo, BC V9R 5K6
 Phone: (250) 756-7154
 Fax: (250) 756-7053
 E-Mail: saundersm@dfo-mpo.gc.ca

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Assessment Document:

Haist, V., D. Fournier and M.W. Saunders. In press. Reconstruction of B.C. sablefish stocks, 1966-1998, and catch projections for 1999, using an integrated catch-age mark-recapture model with area and depth movement. DFO Can. Stock Assess. Sec. Res. Doc. 99/79: 46p

This report is available:
 PSARC Secretariat
 Pacific Biological Station
 Nanaimo, BC V9R 5K6
 Phone: (250) 756-7208
 Fax: (250) 756-7209
 E-Mail: psarc@pac.dfo-mpo.gc.ca
 Internet Address: (www.dfo-mpo.gc.ca/csas)

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