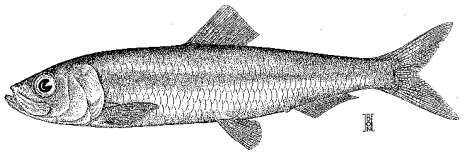
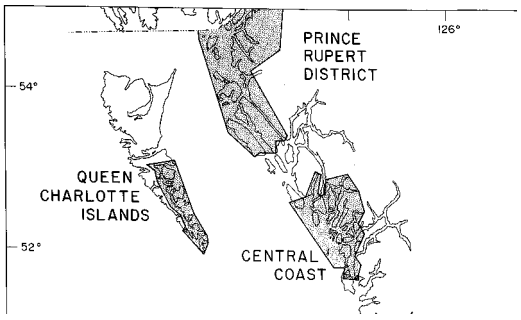




Central Coast Herring

Background

Pacific herring is a pelagic species which occurs in inshore and offshore waters of the North Pacific. In the eastern Pacific it ranges from California to the Beaufort Sea. Herring mature and recruit to the spawning stock predominantly between ages two to five. Within this range, age-at-recruitment tends to increase with latitude.

The Central Coast herring stock is one of five major B. C. herring stocks. Between 1896 and 1936 the catch from this stock averaged 131 t, used mainly for bait. The reduction fishery expanded into the Central Coast in the late 1930s. Catches averaged 35,200 t between 1937 and 1967 when the stock collapsed from overfishing. The commercial reduction fishery was closed. Following a combination of favourable environmental conditions and a low harvest rate, the stock recovered by the mid-1970s. The current roe fishery began in 1972. The target harvest rate of roe herring is fixed at 20 percent of the forecast mature biomass, when stock size is sufficiently above the threshold or minimum spawning stock biomass (Cutoff). The stock achieved recent high abundance levels in the early 1990s, declined over several years, and has increased in recent years. The 1998 assessment forecasts indicate that the mature herring biomass for the coming 1999 season is 43,000 t.

The Fishery

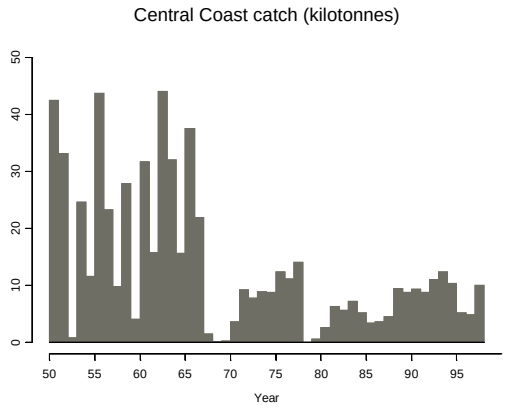
Average Central Coast catch (kilotonnes):

1951-60	1961-70	1971-80	1981-90
22.1	20.0	7.6	5.6

All herring spawning within the Central Coast are assumed to belong to a single stock. For stock assessment purposes, this includes fish which spawn in Kitasu Bay as well as all of Statistical Area 7, and Kwakshua Channel in Area 8. From the late-1930s until the late 1960s, most herring harvested here were processed (reduced) into relatively low value products such as fish meal and oil. Commercial harvest rates increased progressively and were un-sustainable by the early 1960s. By 1965, most of the older fish had been removed from the spawning population by a combination of overfishing and a sequence of weak year-classes, attributed to un-favourable environmental conditions and a low spawning biomass. Consequently, the commercial fishery collapsed in 1967, and was closed by the federal government to allow the stock to recover.

After a four year closure and a fortuitous return of favourable environmental con-ditions, the stock rebuilt enough to sustain a new fishery. There was a growing interest to

harvest roe herring for export to Japan. A small experimental roe harvest began in 1972, and the fishery expanded until 1983, when fixed quotas were introduced to regulate the catch. Small quantities of Central Coast herring are also utilized for spawn-on-kelp, and aboriginal food fish. The objective of the roe herring fishery is to obtain a low volume, high-quality product that is economically profitable and ecologically sustainable.



The fishery is currently managed by setting a fixed target harvest rate of 20 percent of the forecast mature stock biomass. To meet conservation objectives, the management strategy also enforces a minimum spawning stock biomass. If the forecast biomass falls below the Cutoff threshold (17,600 t) the commercial fishery is closed until the stock rebuilds (Stocker 1993). In response to reduced stock levels the Central Coast fishery was closed in 1979 and 1980. Since then the stock has rebuilt to a peak abundance in 1992 and has sustained an average catch of 9,000 t over the past decade. Recent catches from this stock have been:

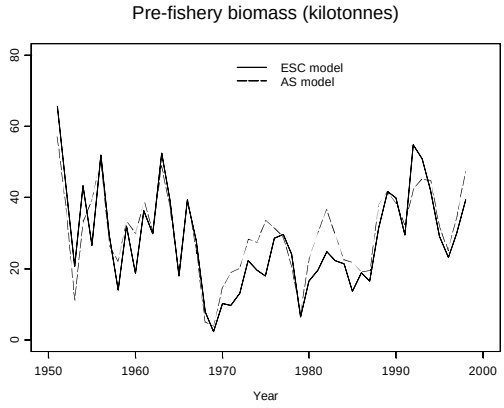
Central Coast catch (kilotonnes):

1993	1994	1995	1996	1997	1998
10.5	11.9	9.6	4.3	3.6	8.6

Resource Status

Herring stock assessments are based on biological samples of the population age composition, average weight-at-age, historical catch data, and assessments of spawn distribution and intensity throughout the coast (Schweigert et al. 1998).

The fishable stock biomass is estimated by two models: an age-structured model and an escapement model. The latter relies predominantly on spawn deposition estimates. The average of the estimates for both models is used to determine the current stock level, project future run size, and recommend an allowable catch.



Recent trends show that the Central Coast herring stock declined from 1992 to 1996, and increased during the past two years to 39,000 t in 1998. Due to some uncertainty in the age-structured model performance the forecast for 1999 is based solely on the escapement model. The forecast of the pre-fishery biomass for 1999 is 43,400 t. Based on the target 20 percent harvest rate this provides for a potential fishery of about 8,700 tonnes.

Outlook

The Central Coast stock reached near historic high levels of abundance in the late 1980s and early 1990s. This was due to the unusually strong 1985 and 1989 year classes recruiting to the stock. Subsequently, the stock declined due to poorer recruitments. The recent increase in abundance is due to the strong recruitment of the 1994 and 1995 year-classes. They should maintain the stock at healthy levels for the next few years.

For More Information

Contact: Jake Schweigert
Pacific Biological Station
Nanaimo, B.C.
V9R 5K6

Tel: (250) 756-7203
Fax: (250) 756-7138
E-Mail: schweigertj@dfo-mpo.gc.ca

This report is available from:

PSARC Secretariat
Pacific Biological Station
Nanaimo, B.C. V9R 5K6

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

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