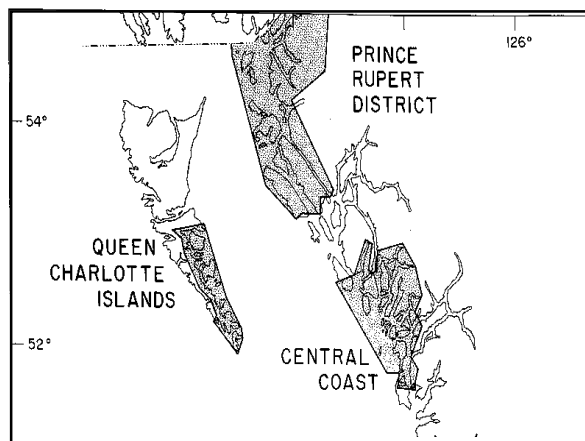


## Central Coast Herring



### Background

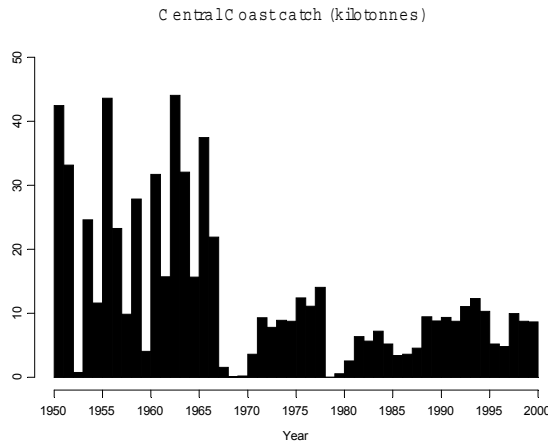
*Pacific herring is a pelagic species which occurs in inshore and offshore waters of the North Pacific. In the eastern Pacific it ranges from California to the Beaufort Sea. Herring mature and recruit to the spawning stock predominantly between ages 2 and 5. Within this range, age-at-recruitment tends to increase with latitude. The Central Coast (CC) herring stock is one of five major B.C. herring stocks. The fishery began here at the turn of the century, mainly for bait, but did not become extensive until the expansion of the dry-salted fishery in the late 1930s and reduction fishery in the 1940s. This stock declined as part of the coastwide collapse from overfishing in the early 1960s, and the commercial reduction fishery was closed in 1967. Following a combination of favorable 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% of the forecast mature stock biomass, when the stock size is sufficiently above the threshold or minimum spawning stock biomass (Cutoff). Recent assessments indicate that the mature herring biomass remains well above the fishing threshold (17,600 t), and should continue to sustain a modest fishery. Recent concerns about declining size at age have moderated with larger fish returning in most areas in 2000.*

### The Fishery

Average Central Coast Catch (ktonnes)

| 1951-60 | 1961-70 | 1971-80 | 1981-90 | 1991-00 |
|---------|---------|---------|---------|---------|
| 22.1    | 20.0    | 7.6     | 5.6     | 8.1     |

All herring spawning in Kitasu Bay, Statistical Area 7, and Kwakshua Channel in Area 8 are assumed to be part of a single Central Coast stock that migrates inshore in the late fall and leaves, after spawning, in late March and April. From the mid-1940s until the late 1960s, these herring were harvested and processed (reduced) into relatively low value products such as fish meal and oil. Catches increased dramatically in the early 1960s but were unsustainable. 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 unfavourable environmental conditions and a low spawning biomass. As a result, the commercial fishery collapsed in 1967, and was closed by the federal government to rebuild the stock.



Central Coast catch (ktonnes)

| 1996 | 1997 | 1998 | 1999 | 2000 |
|------|------|------|------|------|
| 4.3  | 3.6  | 8.6  | 7.5  | 7.5  |

**Resource Status**

Herring stock assessments utilize information from biological samples for determining the population age composition and average weight-at-age, historical catch data, and an assessment of the distribution and intensity of egg deposition in the stock assessment area (Schweigert et al. 1998). The forecast of the pre-fishery biomass of mature herring is estimated by two assessment models: a catch-at-age and an escapement model. The catch-at-age model relies on data of population age-structure and total catch to estimate stock abundance while the escapement model determines total spawning escapement from an estimate of the total egg deposition.

Following the closure, a series of above average year-classes occurred in the early 1970s rebuilding the stock quickly and providing opportunities for a new fishery. During the closure, the small traditional fisheries continued locally for food and bait (Hourston 1980). At this time there was a growing interest to harvest roe herring for export to Japan as their stocks became decimated. A small experimental roe harvest began in 1971, and expanded rapidly until 1983, when fixed quotas were introduced to regulate the catch. A significant quantity of Central Coast herring is also utilized for spawn-on-kelp, and aboriginal food fish.

Since 1970 the two assessment models have displayed very similar estimates of stock abundance. The PSARC Pelagic Subcommittee uses decision criteria to assess each model thereby determines the current stock level, projected future run size, and recommended allowable catch. For 2001, the assessment and forecast based on the escapement model was adopted by the Subcommittee.

The objective of the current herring fishery is to obtain a low volume, high-quality product that is economically profitable and ecologically sustainable. The fishery is managed by setting a fixed quota based on a harvest rate of 20% 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 fishery Cutoff threshold (17,600 t) the commercial fishery is closed to allow for stock recovery. In response to reduced stock levels the Central Coast fishery was closed in 1979 and 1980. Subsequently, the stock has rebuilt to a peak abundance in 1992 and has sustained an average catch of 8,100 t over the past decade. Recent catches from this stock have been:

This stock experienced high levels of recruitment during the 1950s and early 1960s and reduced recruitment during the late 1960s and early 1970s. The fishery was closed in this area in 1979 and 1980 due to low abundance levels. Recent trends show that the Central Coast herring stock declined from 1992 to 1996, and increased in subsequent years. Assuming an average recruitment in 2001 should result in a run of about 37,000 tonnes and a harvestable surplus of 7,400 tonnes based on the 20% target harvest rate.

## ***Outlook***

Since very little is known about the factors that affect recruitment in this stock, it is difficult to forecast future stock trends. 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. However, recent information suggests that abundance of the 1996 year-class is poor and 1997 was average so abundance will be expected to decline in the longer term.

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This report is available:

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ISSN 1480-4913 (for English series)  
ISSN 1480-4921 (for French series)

*La version française est disponible à l'adresse ci-dessus.*



## ***Correct citation for this publication***

DFO, 2001. Central Coast Herring. DFO Science Stock Status Report B6-02 (2001).