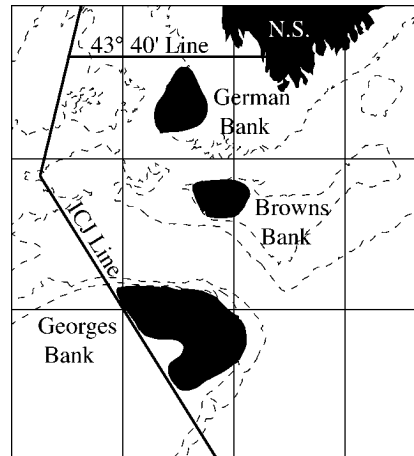


### Browns Bank Scallop



#### Background

The Sea Scallop, *Placopecten magellanicus*, is found in the Northwest Atlantic, from Cape Hatteras to Labrador. Scallops are aggregated in patches and harvestable concentrations are called beds. Major areas of offshore fishing activity are Georges Bank, the Scotian Shelf (Middle Grounds, Sable Island Bank, Western Bank, Browns Bank, and German Bank), and St. Pierre Bank. Scallops prefer a sandy, gravel bottom and occur in depths of 35 to 120 m.

Scallops have separate sexes. They mature at age 2. The female gonad is red in colour and the male gonad colour is creamy white. The major spawning period is August to October. The fertilized eggs develop in the water column until settlement on the bottom within 30 to 60 days.

Growth is estimated from the position of annual rings on the shell. The growth rate varies from one area to another and is influenced by season, depth, and temperature.

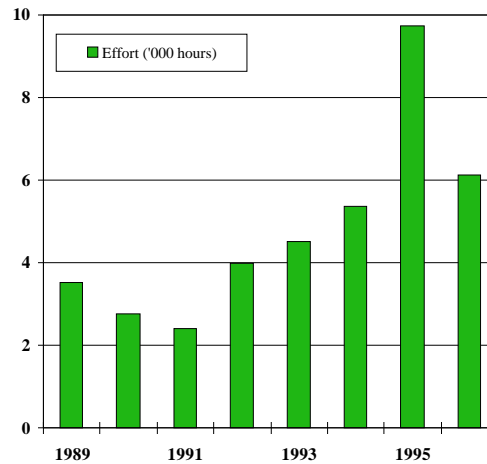
Offshore scallop vessels range from 27 to 46 m length overall. The offshore fleet uses a New Bedford offshore scallop rake or drag, 4 to 4.9 m in width. Two drags are fished simultaneously, one on each side of the vessel.

#### The Fishery

Landings (tons)						
Year	1991	1992	1993	1994	1995	1996
TAC	220	450	600	1400	2000	750
Catch	201	454	575	1403	2002	743
Area fished (km <sup>2</sup> )	388	512	560	765	901	1005

During the 1970's and early 1980's, a scallop fishery took place on the southern part of Browns Bank and along the edge of the Bank at depths over 100m. Landings ranged between 4 and 270 t with moderate catch-rates. The 'recent' fishery started in 1989 on the northern part of Browns Bank in areas not previously fished. The area under exploitation continued to expand until 1996. Catches were rising as new grounds were exploited and year-classes were regularly recruiting to the fishery. The latest fishery information would indicate that the expansionary phase is coming to an end.

Since 1989, the Browns Bank fishery has been managed with a catch limit and a meat count set at 55 meats per 500 g. The meat count was reduced to 40 in 1994. Despite record catches in 1995, both commercial and survey catch-rates declined. It was recommended that the 1996 TAC levels should not be increased above the interim TAC of 750 t given the poor catch-rates performance. About 70% of the TAC was caught during the first quarter of the year; up to that point, the winter fishery had been considerably less. Areas fished represent over 5 times the size of areas fished when the fishery began in 1989. **Effort** also decreased from 1995 to 1996; it dropped 37% compared to 63% for catches.

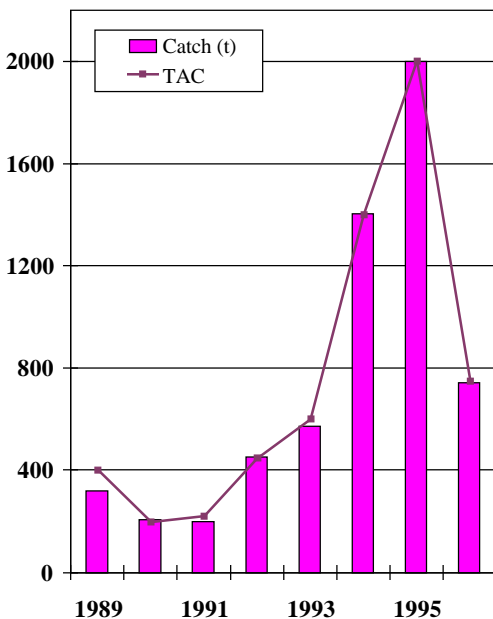


Percentage of annual catches on a quarterly basis is tabled below for the last 3 years. The fishery was not pursued on a year round basis prior to 1994.

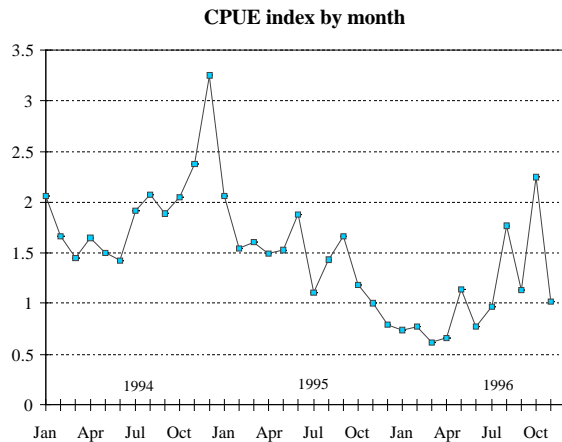
Year	Q1	Q2	Q3	Q4
1994	11	13	53	23
1995	30	28	20	22
1996	69	13	12	6

**Resource Status**

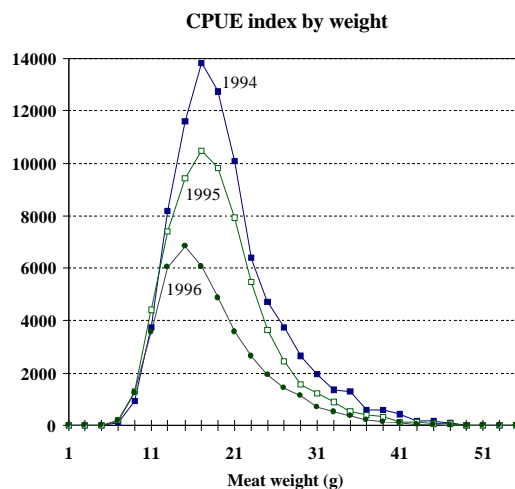
Logbooks provide catch and effort data from which catch-rates are estimated. Landings are monitored at dockside. The catch is sampled for size distribution. Research surveys followed the fishery distribution and provided information on sizes. Stock status is based on commercial catch-rates, size of meats in the catch, and research survey indices.



The area fished, as indicated in the landings table, has expanded since the fishery began in 1989. This complicates the interpretation of **commercial catch-rates**. The catch-rates from 1994 to 1996 were comparable as they covered the same fishing area. A reduction of 59% in commercial catch-rates from 1995 to 1996 and a shift toward smaller meats in the catch accompanied lowered catches. Monthly catch-rates over the last 3 years also show a declining trend. During the latter part of 1996, CPUE's were higher but are based on fewer catches.



The catch-rate by weight shows an important decline for meats in the 10 to 30-g range from 1994 to 1996. The mode in the **meat weight** distribution from the catch has shifted towards smaller meats in 1996. Under the monitoring program implemented in 1995, less than 2% (1995) and 3% (1996) of the catch was made up of 50-count scallops (50 scallops per 500 g).



The 1996 **research survey** showed low densities of old scallops (ages 7+). The 1990 and 1991 year classes are entering the fishery as new recruits at ages 6 and 5. The size of these year classes is below average. Abundance of prerecruits (ages 3 and 4) seems average. The 1996 recruited biomass survey index dropped by 60% from 1995.

**Outlook**

In 1995, the northern section of Browns Bank recorded the highest catches and the second highest CPUE's since the beginning of the recent fishery (1989). Catches and catch-rates were well below these records in 1996.

Biomass estimates have decreased as the pre-1989 year classes are leaving the fishery. The weaker 1990 and 1991 year classes are now entering as new recruits. Catches, CPUE's, and meat weight will continue to go down until incoming recruitment to the fishery improves. The fishery has been directing at age 7 and older scallops which provide better yield. It would be prudent to limit catches below the 1996 levels during the passage of the weak year classes through the fishery. Higher catch levels would only encourage the exploitation of younger scallops and the loss of yield.

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**References**

Robert, G. and M.A.E. Butler, 1997. Status of the Browns Bank scallop fishery for 1996. DFO Canadian Stock Assessment Secretariat Res. Doc. 97 / 48.

This report is available from the:

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