

### Eastern Scotian Shelf Scallop

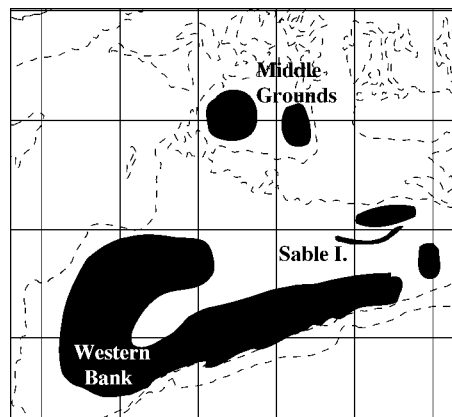
#### Background

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 through several stages 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

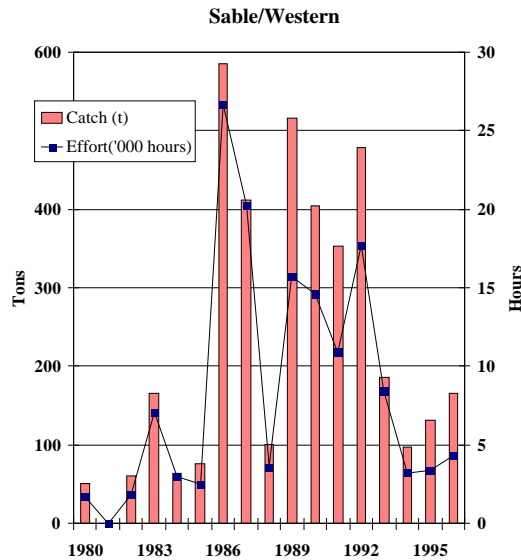
Landings (tons)						
Year	80-89 Avg.	1992	1993	1994	1995	1996
TAC*	-	-	-	150	150	175
Sab/West	230	480	190	100	130	165
Middle	30	40	55	15	20	10

\* - TAC for both areas

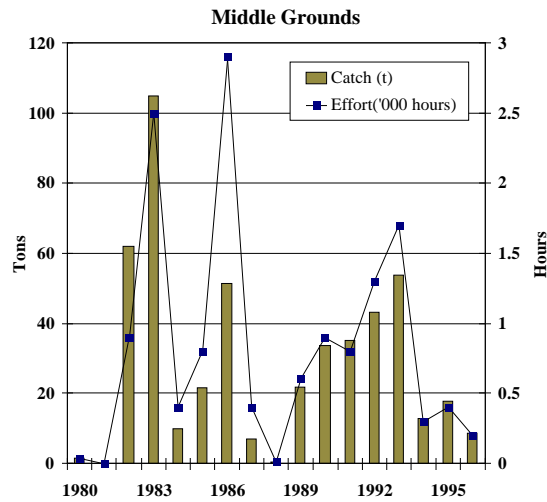
Scallop beds on the Scotian Shelf offer alternatives to Georges Bank for the offshore scallop fleet although catch-rates are lower on the eastern Shelf. Traditionally the fishery has been pursued on a competitive basis. Limited entry and a meat count of 45 meats per 500 g are the two main management tools prior to 1994. Fishing has been under quotas since 1994.

Scallop fishing grounds on the eastern Scotian Shelf (Middle Grounds, Sable Island Bank, and Western Bank) have been grouped under one allocation plan. The catch limit was based on the low end of historical catches over the period 1980 to 1994. The TAC was set at 150 t in 1994-95 and 175 t in 1996. The Sable Island Bank/Western Bank area has the most important

scallop beds. Scallop beds have been found in an area of 3,500 km<sup>2</sup> on these Banks. Most landings came from Sable/Western. Catches have yet to return to the long term average of 250 t. Effort has followed the same trends as catches. It increased 20% from 1995 to 1996.



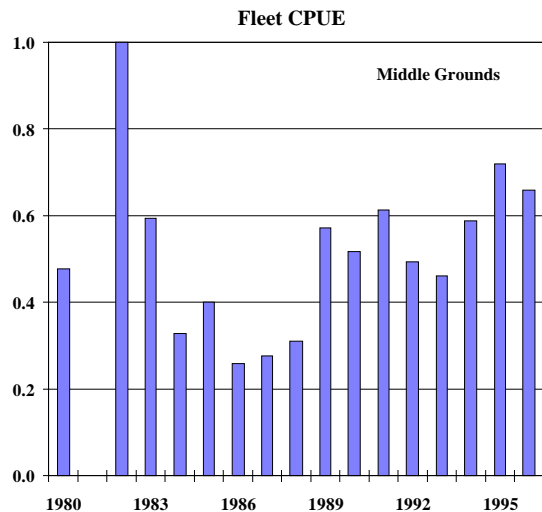
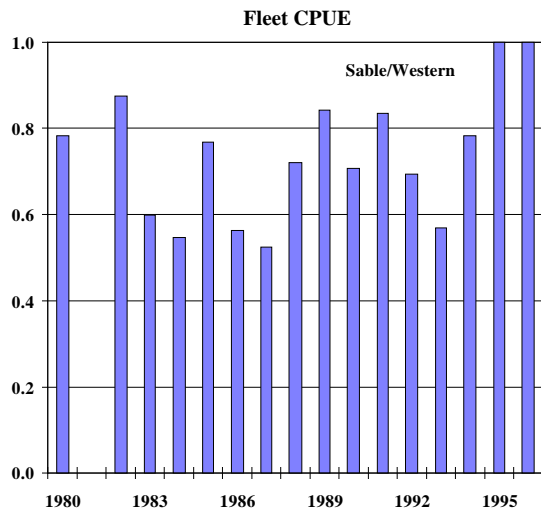
Middle Grounds is a shallow bank of which 900 km<sup>2</sup> may carry commercial densities of scallops. Catches have generally decreased before the implementation of TAC's. This may indicate a decline in abundance (productivity). Catches rose from 20 to 55 t from 1989 to 1993, then dropped to less than 20 t in 1994. Less than 10 t of the 175 t TAC came from Middle Grounds in 1996. This is a 50% reduction from 1995. Effort is also down by the same percentage.



**Resource Status**

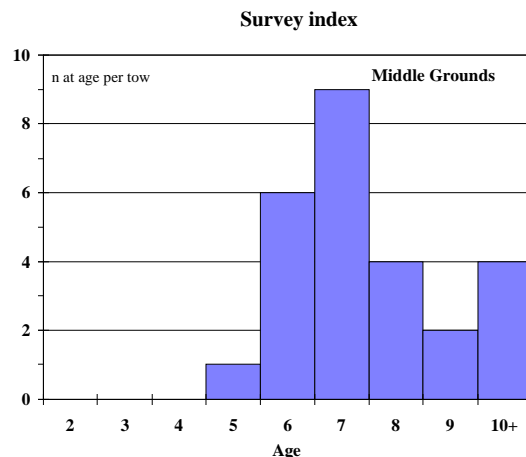
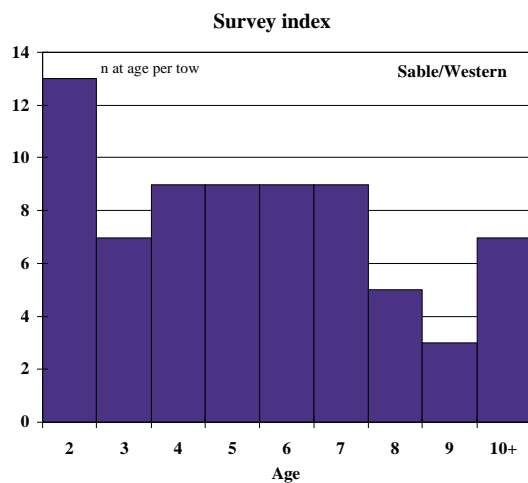
Logbooks provide catch and effort data from which catch-rate (CPUE) is estimated. Landings are monitored at dockside. The catch is sampled at dockside for size distribution. Research surveys provide average numbers-at-age of scallops per standard tow. CPUE, size of meats in the catch and research survey abundance indices are used to determine stock status.

After exploring the Sable Island/Western Banks area in the early 1980's, catches increased but CPUE remained low. In 1994, a catch limit of 150 t was supported by industry to allow for rebuilding the stock. The 1994 CPUE, under the first year of quotas, was 40% higher than in 1993. It improved another 14% from 1994 to 1995 to remain unchanged for 1996. The most recent catch-rates are the highest recorded since 1980.



The 1996 **research survey** indicates a slight decrease in recruited (>age 5) densities (16%) and biomass (10%) from 1995. Densities of prerecruits improved, especially age 2 scallops (1994 year class).

**Research survey catch-rate indices** show low abundance of scallops except for the first survey in 1983. Given the relatively low fishery performance, survey work was not carried out every year. The latest survey results indicate continued low densities of recruited scallops. Over the last 3 years, abundance of prerecruits (age <5) has been extremely low in contrast to Sable Island / Western Banks.



**Commercial catch-rates** on Middle Grounds decreased slightly from 1995 to 1996. Still, the 1996 rates are the third highest recorded since 1980.

**Outlook**

There has been little change in the fishery performance for the Sable/Western Banks area from 1995 to 1996. Catch levels have been

restricted by TAC's. The 1996 survey indicates that the abundance of prerecruits could be improving. There was a small decrease in recruited densities and biomass. Catches should be maintained at current levels so as not to jeopardise rebuilding the stock.

Middle Grounds recruitment appears to be sporadic. The resource potential is limited since only a small localised area of Middle Grounds has sustained exploitable scallop beds. Catch levels should be kept to a minimum to protect existing stock biomass.

### ***For more Information***

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### ***Reference***

Robert, G. and M.A.E. Butler, 1997. Scallop stock status for 1996 - Eastern Scotian Shelf and German Bank. DFO Canadian Stock Assessment Secretariat Res. Doc. 97 / 49.

This report is available from the:

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