Comparison of Mid-Atlantic sea scallop length-frequency distributions between 1977 and 1975 as determined from research vessel surveys and commercial landings

by

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INTRODUCTION

Research vessel surveys of sea scallop (*Placopecten magellanicus*) populations in the Middle Atlantic Shelf region from Long Island south to Cape Hatteras, N. C. were conducted during 7-16 August 1975 and 6-16 September 1977 by the R/V ALBATROSS IV. Stations were selected within depth zones ranging from 15-60 fathoms. The sampling was designed to provide a fairly uniform distribution of stations within the entirety of Mid-Atlantic sea scallop habitats and thus furnish unbiased abundance and size composition indices. The sampling scheme was not devised to provide precise estimates of localized sub-areas of high scallop concentrations, but rather to obtain biological data representative of the scallop resource throughout the total Mid-Atlantic area.

At all stations, fifteen-minute tows at 3.5 knots were made with a 10-foot standard offshore sea scallop dredge with 2-inch rings. Specific operational details during each cruise are enumerated in cruise and information reports available from the Northeast Fisheries Center, Woods Hole, Massachusetts.

Length-frequency data from commercial landings of Mid-Atlantic sea scallops were obtained from catch sample measurements of shells (top valve only). Samples were taken from scallops caught throughout the Mid-Atlantic region.

RESULTS

Comparison of the relative abundance and length-frequency composition of individuals sampled in the entire Mid-Atlantic region between the 1975 and 1977 survey cruises (Figure 1) indicates that a single year-class (probably 1972) is the dominant group within the population. The appearance of such an extremely abundant year-class is a periodic phenomenon in scallops and these tend to subsequently support the fishery for 2-4 years afterwards. The 1977 survey results show, in contrast, that recruitment of scallops from the 1973 and 1974 spawnings is poor (i.e., only a few scallops between 40-70 mm long were taken in 1977). Hence, these year-classes should contribute much less to the future population than the 1972 year-class. The success of scallop spawnings since 1975 is currently unknown since individuals are not effectively retained by the survey sampling gear until they reach age 3.

Figure 2 depicts the length-frequency of the commercial Mid-Atlantic landings during 1975-1977. It is apparent that the composition of the scallop catch in the past two years has centered upon the now fully recruited 1972 year-class.

DISCUSSION

The periodic nature of very strong year-classes in the Mid-Atlantic region implies that, in the absence of another good "set", the number of scallops harvested in 1976 and 1977 cannot be expected to be maintained without significantly increasing effort. While this is true for the region as a whole, there may exist certain localized beds, not yet heavily fished, that could produce high catch rates. The lack of pre-recruit scallops in 1977 Mid-Atlantic survey suggests that the age groups currently in the exploitable population will continue to be the harvestable groups in the immediate future.
Figure 1.

MID-ATLANTIC SCALLOP CRUISES
STRATA 1-7, 61-75

SCALLOP LENGTH
Figure 2.

COMMERCIAL L-F
MID-ATLANTIC
(STAT. AREA 6)

LENGTH OF SCALLOP