

decreasing the populations. The actual 1949 quotas were 1,320 for Group IV and 850 for Group V.

Because of the severe over-fishing, the Group IV population will take from 30 to 50 years and the Group V population from 40 to 60 years to recover to near-peak population levels.

"The Sperm Whale Project"

by J.L. Bannister

Following the 1963 ban on humpback whaling the Australian industry is now based on sperm whales. Until the recent decline of humpbacks, sperm whales formed an insignificant part of the Australian whaling economy.

Charts of the activities of American whale-ships from 1761 to 1920 show that two areas off Western Australia were suitable hunting grounds for sperm whales. One area centred some 300 miles off-shore from Carnarvon was fished in summer and winter, while an area nearer the coast from Fremantle round Cape Leeuwin to Albany was fished mainly in winter.

The world's stocks of sperm whales have been little studied in the past, but investigations are now being made at an increasing rate. In contrast to the near-shore migration of humpbacks, sperm whales rarely cross on to the continental shelf. Males are found in the Antarctic but females rarely move south of latitude 40°S. The project currently being carried out by the Division of Fisheries and Oceanography, C.S.I.R.O., is designed to identify the Western Australian sperm whale stocks and assess the sustainable yield. During 1963 the total Australian sperm whale catch was 655 of which 598 whales were taken off Albany.

An important item of the current project is a programme of aerial spotting which has thus far completed 13 months of a scheduled 24 months. A chartered aircraft is used on monthly survey runs for 150 miles from the edge of the shelf from north of Carnarvon to east of Albany. The approximate area embraced by the survey is 156,000 square miles. Results from the survey are giving information on the density and distribution of whales in this area.

A further important aspect of the present project is whale marking. During 1963, 164 sperm whales were marked and it is hoped to arrange for two marking cruises in the

near future. An autumn marking programme near Port Lincoln in South Australia should give information on the general migration pattern of the westerly and south-westerly migrating whales near Albany. In addition a spring marking cruise off Geraldton and Carnarvon should help to elucidate the movements of sperms which seem to be moving south in this region in November.

Much research is needed on the general biology of sperms, particularly on the breeding-cycle and age determination. The most promising ageing method involves counting growth layers in the teeth.

A programme of blood-typing is being initiated to help identify local stocks and study their relationship with other sperm whale populations in the Indian Ocean.