

Antarctic studies of the Sea Fisheries Institute in Gdynia

The Sea Fisheries Institute started an exploration of the South Atlantic in December 1973, while the research vessel of the Institute, "Profesor Siedlecki" carried out the studies of waters around the Falkland Islands and further south up to 57°S. The same vessel made a fishery-biological recognition of waters around the Kergulena Islands in the southern part on the Indian Ocean in April 1975.

Research vessels of the Institute participated in the four scientific antarctic expedition which took place in period from December 1975 to April 1979.

R/V "Profesor Siedlecki" and a fish factory trawler "Tazar" chartered by the Institute from Świnoujście participated in the first expedition lasting from December 22, 1975 to July 1, 1976. This expedition resulted in numerous and valuable experience and scientific material which confirmed the possibility of fishing for antarctic krill and certain species of fish by Polish fishing vessels.

The research carried out during the first Polish expedition concentrated on the krill and had a complex character, covering the following: environmental studies, krill biology, hydroacoustic methods of the localization of krill concentrations technique of krill fishing and technology and mechanisation of processing krill to food and fodder products.

The programme of the basic studies, decided upon by Polish Academy of Sciences and by the Sea Fisheries Institute covered among the others the following goals: Fishing of the amount of krill sufficient for the on-board studies and for the studies on the possibilities of krill utilization as food and fodder run in Poland; studies of krill biology, especially of certain parameters of population dynamics; studies of selected physico-chemical environmental factors and studies of important physiological reactions conditioning the grouping of krill.

The technical studies were devoted to the selection of proper fishing gear, nets and fishing tactics.

The studies of technology and mechanization of krill processing covered the following: gathering the information necessary for the proper methods for preserving the krill, technology of krill processing to food and fodder, studies and choice of proper mashinery and production lines.

Ichthyology studies of fish occurring in antarctic waters were also performed.

The second sea antarctic expedition, organized entirely by the Institute, with the participation of r/v "Profesor Siedlecki" accompanied by fishery vessels, started on 4 December 1976 and finished in June 1977.

The scope of studies of this second expedition was much broader than

of the first one. The expedition carried out the research and scientific-industrial exploration in the following regions: South Georgia, South Shetlands, South Orkneys, Drake's Strait and Bransfield's Strait and along the Graham Land up the Adelaidae Island. Three vessels: r/v "Profesor Siedlecki" and trawlers "Gemini" and "Tazar" crossed the Antarctic Circle for the first time in the history of Polish fishery.

Apart from the continuation of studies initiated during the first expedition, the following were also investigated: hydrometeorology, cartography, seston and biocenoses of antarctic waters. Various aspects of studies were devoted to the krill: its chemical characteristics, bioenergetics, activity of proteolithic enzymes, its lipids, also the technology of processing the krill and mechanization of processing by machines installed on board.

The third antarctic expedition, with the participation of the second research vessel of the Institute r/v "Profesor Bogucki" started in September 1977 and lasted till June 1978. It is worth pointing out that during this expedition r/v "Profesor Bogucki" together with a fish factory trawler "Sagitta" sailed around the antarctic continent for the first time in the history of Polish ocean going navigation, making an exploration of the possibilities of fishing for the krill in the unexploited till this time regions of Antarctic.

The data gathered during this expedition broadened the experience of previous expeditions, being at the same time a prove of already elaborated methods of studies of the new, unexploited regions of Antarctic. A valuable material was gathered, and numerous biological analyses of the krill from a large number of hauls were performed. Studies on the technology and industrial scale processing of the krill for food, fodder and technical purposes, started during the previous expeditions, were continued. The tools and techniques of the krill catching were investigated, valuable observations for the tactics of krill fishing were made, too.

The fourth antarctic expedition, with the participation of r/v "Profesor Siedlecki" took place in the period November 1978 till May 1979.

The main aim of this expedition was to study the concentrations of fish and their resources in the regions of Scotia Sea and the Antarctic Peninsula. The studies of the marine environment, biology of the krill, ichthyology, hydroacoustics, fisheries technology, of the selectivity of fishing gear and cartographic studies were performed.

The participation of the research vessels of the Institute and of fish factory trawlers chartered by the Institute, and the participation of scientists from the institute in many others scientific activities devoted to the studies of Antarctic are the basis of the scientific and exploratory fish exploitation activities in this region. These activities made possible the industrial fishing in these far south waters, the broad utilization of their living resources and also supplied the basic materials for the research and experiments in Poland.

The full scientific documentation of the research projects done during the above antarctic expeditions, and of the studies and industrial projects carried out in the laboratories of the Sea Fisheries Institute and of other research institutions colaborating with the Institute, is to be found in the detailed reports from particular expeditions and in other publications (Bibliography) which are to be found in the Institute.

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Paper received 17 May 1980

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