INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

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PROGRAM OF RESEARCH ON KING CRAB

The Committee on Biology and Research notes with satisfaction that a program of research on king crab in the Eastern Bering Sea is already underway, and draws attention of the Commission to the fact that this is one of the first results of its efforts. Following the Commission's meeting in February, 1954, the United States and Japanese Biologists undertook collaboration in the planning and conduct of their respective programs.

Previous research on king crab by Japanese and United States scientists has brought out fragments of general biological features. It is well established that although there are three species of king crabs, only one, Paralithodes camtchatica, has proved to be concentrated enough for commercial fishing. The anatomy of the adults and of the various stages of larvae is known. The distribution of the species is known in a general way. A little is known about the movements of adults. The size composition of the catches is known and also the sex ratio. The mating season and the time of hatching of eggs are partially known. The fecundity, i.e. the relation between the numbers of eggs produced and size of crabs is partially known.

In addition to the gaps indicated above, the following features of the biology are virtually completely unknown: the specific environmental conditions that determine the distribution of king crab; the characteristics of the various stocks; the growth rates and frequency of moulting; age composition of stocks; longevity; size of year broods; food; the grounds where eggs are hatched; abundance of stocks; life history of larvae, including their distribution and dispersal and the relation of oceanographic conditions thereto; rate of natural mortality; and effect of fishing on the stocks.

Studies during 1955 will be carried on by Japanese and United States scientists working in close collaboration as indicated under the following topics.

A. Collection and analysis of records of commercial catches.

Japanese and United States researchers on board commercial vessels will record for every unit of effort the following data: Time, duration, course, depth and position; wind direction and velocity, barometric readings and air temperatures; water

surface and bottom temperatures, and the total number of legal sized male crabs. In an adequate sample of each day's catch they will record the following data:
Species composition of catch, i.e., number of tanner crabs (Chionoecetes sp.), rock crabs (Erimacrus isembeckii), flatfish, and other species and the number of king crab by sexes, stato of maturity, size and condition of shell.

B. Identification of stocks.

Measurements of several body parts will be recorded in samples of the catches. Results of tag experiments are expected to throw light on differential distribution and behaviour of various stocks.

C. Relation of currents to distribution and dispersal of young.

United States and Japanese scientists working in collaboration will take plankton samples as systematically as opportunity permits in order to trace the transport of larvae. In addition, observations of water conditions will be recorded to provide pertinent information on currents.

D. Growth and age determination.

Scientists of both the United States and Japan are experimenting to develop a mark or tag that will be retained through moulting.

United States scientists are raising crabs in captivity, beginning with larval stages, under controlled conditions to determine the rate of growth and frequency of moulting.

E. Study of movements by tagging.

United States and Japanese biologists on board commercial fishing vessels are conducting tagging experiments with the collaboration of their respective fishing companies, and continuing experiments to improve tagging methods.

F. Determination of fish and natural mortalities.

Results of tagging experiments in progress, and eventually analysis of age or size composition of the catch, are expected to provide information on rates of mortality.