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**A Japanese Research Plan for Salmon Stock Assessment
in the North Pacific Ocean**

by

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A Japanese Research Plan for Salmon Stock Assessment in the North Pacific Ocean

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Abstract

To carry out the stock assessment of salmon, Japan conducts the research vessel surveys on 1) immature and maturing salmon, 2) juvenile salmon, 3) wintering salmon, and 4) coastal salmon stocks and the basic studies for the stock assessment such as population dynamics, historical data analysis, stock identification, hard tissue, nutritional condition, feeding ecology, genetics, and breeding characters.

Introduction

To make scientific bases for salmon management to achieve the conservation of salmon stocks, Japan will promote to assess salmon stocks in the North Pacific Ocean and adjacent seas. This paper describes a summary of Japanese research plan for stock assessment of salmon.

1. Research Vessel Surveys (Fig. 1)

1-1. The Survey for Stock Assessment of Immature and Maturing Salmon in the North Pacific and the Bering Sea

The main purpose of this survey is to evaluate stock abundance of each year class (mainly chum salmon) and biological characteristics in the survey areas in summer. We will carry out annual driftnet surveys for immature and maturing salmon and oceanographic observation using four research vessels.

1-2. The Survey for Stock Assessment of Juvenile Salmon

The goal of this survey is to evaluate the abundance and survival rate of juvenile salmon in summer (mainly chum and pink salmon originating in eastern Asia). We will conduct annual cruises for driftnet survey and oceanographic observation using one or two research vessels in the Sea of Okhotsk and the Pacific coast waters off the Kuril Islands.

1-3. The Survey for Wintering Salmon Stocks

We have little information on ecology of wintering salmon stocks. We intend to carry out non-periodical survey (one or two cruises per three years) for assessment of wintering salmon stocks by a large research vessel using a surface trawl.

1-4. Other Coastal Surveys

We carry out some surveys for stock assessment in the Sea of Japan and the 200 mile zone of the Pacific coast of Japan. The purpose of these surveys is to make scientific base for the coastal fisheries management.

2. Basic Studies for Salmon Stock Assessment

2-1. Population Dynamics

Based on the results of the assessment surveys, basic studies on population dynamics of salmon stocks are carried out. The goals of this studies are to make clear survival process of major salmon stocks and to forecast abundance of salmon returning to their natal areas. The results of the following studies (2-7) are also referred for composing the dynamics model and estimating parameters of the dynamics.

2-2. Analysis of Historical Catch and Biological Data Collected by Japanese Salmon Research Vessels

To make clear inter- and intraspecific interaction among major salmon stocks, we will analyze the historical catch and biological data collected by Japanese salmon research vessels. We may also examine the influence of climate change on salmon stocks in this study.

2-3. Stock Identification

We will promote to study scale pattern analysis, electrophoresis analysis, and other methods for stock identification of salmon.

2-4. Studies on Hard Tissues and Nutritional Condition

To evaluate the growth condition of salmon, studies on hard tissues (otolith, scales and others) and nutritional condition are promoted.

2-5. Studies on Feeding Ecology

To make clear the food supply condition of salmon in the ocean, samples of stomach contents and prey organisms, which are collected by research vessels, are examined and evaluated.

2-6. Genetic Studies

To monitor genetic variation and stability of salmon and to make baseline of stock identification, electrophoresis analysis and other genetic studies are promoted in major natal rivers.

2-7. Monitoring Breeding Characters

To investigate long-term fluctuations in biological characteristic of salmon, we continue to annually monitor the change in size, age, and other basic biological characters at maturity in major natal rivers.

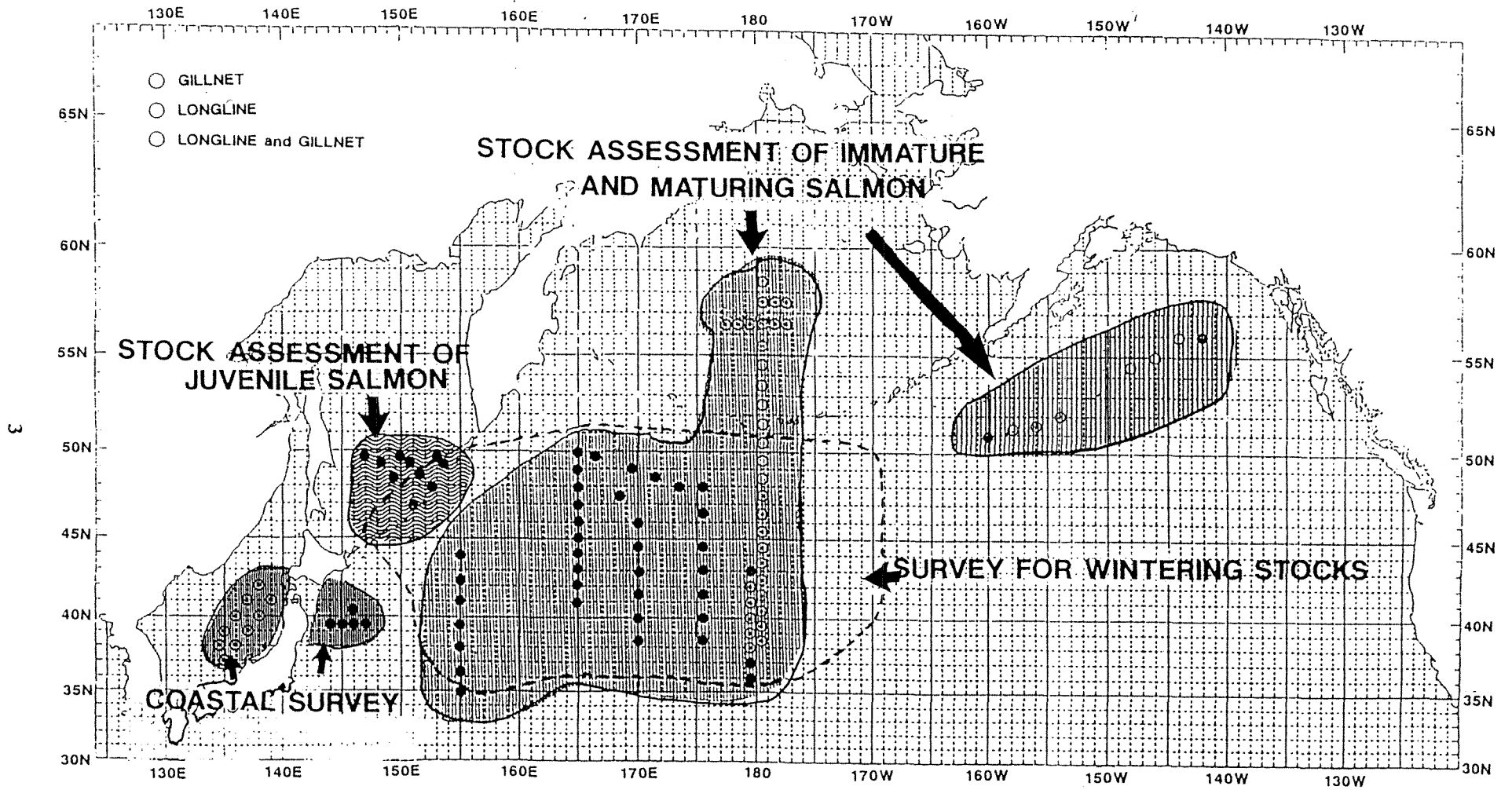


Fig. 1 . A schematic diagram of Japanese salmon research vessel surveys