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INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

Seattle, Washington U.S.A. 1983 May 20

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REPORT OF THE WORKING GROUP ON JOINT SURVEYS OF THE SUBCOMMITTEE ON  
NON-ANADROMOUS SPECIES

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The Working Group on Joint Surveys met for the period of May 16-20, 1983 in Seattle, Washington. S. Takehama served as Chairman of the sessions. T. M. Sample and T. K. Wilderbuer, both of the United States, served as rapporteurs.

1. PARTICIPANTS. The following persons took part in the Working Group sessions:

JAPAN	K. Okada K. Wakabayashi	Far Seas Fish. Res. Lab. Fisheries Agency, Shimizu
UNITED STATES	R. G. Bakkala L. L. Low J. A. June L. L. Ronholt T. M. Sample J. J. Traynor T. K. Wilderbuer	Northwest and Alaska Fisheries Center, NMFS, NOAA, Seattle " " " " "
Secretariat	S. Takehama	(INPFC)
Interpreter	T. Owada	American Translators Association

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AGENDA. The following agenda was adopted:

- A. Report of the 1979 cooperative survey in the eastern Bering Sea.
  - (1) Corrections to the final draft
  - (2) Status in INPFC review process
- B. Report of the 1980 cooperative survey in the Aleutian Islands region. Review of:
  - (1) Completed drafts of sections of the report
  - (2) Formats for distribution figures
  - (3) Results of length-weight data analysis
  - (4) Results of age data analysis
  - (5) Finalization of authorship of reports
  - (6) Schedule and assignments for completion of report
- C. Report of the 1981 cooperative survey in the eastern Bering Sea. Review of:
  - (1) Completed drafts of the introduction and methods sections
  - (2) Formats of the distribution figures
  - (3) Formats of other figures and tables in results section
  - (4) Contents of results section
  - (5) Contents of discussion section
  - (6) Schedule and assignments for completion of report
- D. Report of the 1982 cooperative survey in the eastern Bering Sea.
  - (1) The completed data analyses
  - (2) Format and outline for report
  - (3) Assignment of authors to sections of the report
- E. Summary report of results from the 1979, 1981, and 1982 cooperative surveys in the eastern Bering Sea.
  - (1) General plan of the report
  - (2) Outline for the report
  - (3) Authors
- F. Planning for the 1983 cooperative survey in the Aleutian Islands region.
  - (1) Commitments of vessel effort to the survey by each nation
  - (2) Area of the survey and station pattern
  - (3) Coordination of U.S. and Japanese survey activities
  - (4) Fishing power experiments
  - (5) Coordination of and methods of data collection
  - (6) Exchange of scientific personnel
- G. Future cooperative surveys.
- H. Future meetings.

3. TERMS OF REFERENCE. The terms of reference of the working group were:
- A. To review the final draft of the results of the 1979 U.S.-Japan cooperative survey of the eastern Bering Sea.
  - B. To facilitate the completion of the report on the 1980 U.S.-Japan Cooperative survey of the Aleutian Islands through (1) review and amendment of the completed draft and (2) review of the status of the associated data report.
  - C. To facilitate completion of the reports on results of the 1981 and 1982 U.S.-Japan cooperative surveys in the eastern Bering Sea through discussions on (1) analytical approach and (2) the methods of reporting the results.
  - D. To plan research activities involving the 1983 U.S.-Japan joint survey of the Aleutian Basin through (1) scheduling of research vessel activities, (2) scheduling comparative trawling experiments, and (3) discussions of personnel and equipment exchange.
  - E. To discuss tentative survey plans for the future.

4. REPORT OF THE 1979 COOPERATIVE SURVEY IN THE EASTERN BERING SEA.
- A. Corrections to final draft

The final draft of the 1979 joint report was reviewed by United States and Japanese scientists. Minor inconsistencies and editorial revisions were brought to the attention of the senior author, R. G. Bakkala, for incorporation into the report. During the review process, a Far Seas Fisheries Research Laboratory contribution number was assigned to the manuscript, which Japanese authors requested be listed in the published report. The Secretariat recognized the significance of the issue and will determine the appropriate format for inclusion.

Although most editorial matters were readily resolved, several revisions were contingent on re-examination and verification of the analytical data sets. U.S. scientists will review accuracies of growth curves presented in the report. A brief discussion of the possible sources of bias will be drafted and included in the report. The United States will also provide information on the sex-composition of pollock on the continental shelf during the U.S. hydroacoustic portion of the survey for inclusion into the report. Japanese scientists will re-examine the sex-ratio composition of pollock aged 5 years and older taken during the Japanese hydroacoustic survey. Revisions requiring data verification or possible reanalysis will be facilitated through correspondence.

The senior author will advise the Secretariat of all revisions and corrections as soon as they are concluded.

B. STATUS OF INPFC REVIEW PROCESS

The Secretariat distributed the draft of the 1979 cooperative report to the editorial referees on March 2. Responses have not yet been received from all referees.

5. REPORT OF THE 1980 COOPERATIVE SURVEY IN THE ALEUTIAN ISLAND REGION.

A. Completed drafts of sections of report

Revised drafts of the introduction and methods sections and accompanying tables and figures were reviewed. Rank order tables will be changed to show percentage of shrimp, squid, and octopus of the total of these three groups rather than the percentage of total invertebrates.

Biomass tables will be changed to show a dash (-) instead of zero in areas where sampling did not occur. The square mileage table will be footnoted to show this. Japanese scientists also felt the biomass tables should include average weights of the fish by subarea except for species where the population numbers were estimated from the average weights. U.S. authors agreed this change would be beneficial and will amend the tables accordingly.

B. Formats for distribution figures

The distribution and abundance figures for Atka mackerel, Pacific cod, pollock, giant grenadier, and Pacific ocean perch were reviewed. It was agreed that the format for these figures very well illustrates species distributions and relative abundance.

C. Results of length-weight data analysis

Computer generated plots showing the regression of length-weight data for species where adequate data were collected was presented by U.S. authors. Copies were given to Japanese scientists to facilitate writing of their respective species sections for the results.

D. Results of age data analysis

Graphics illustrating age composition were presented by U.S. authors for the five species where age structures had been collected and interpreted. Both nations agreed to present the information by sex and total for each area for principal species. Species will be decided through correspondence.

E. Finalization of authorship of report

Scientists from both nations agreed that L. Ronholt of the United States would be the senior author of the 1980 Aleutian Island survey report and that the order of authors would be L. Ronholt, K. Wakabayashi, T. Wilderbuer, H. Yamaguchi, and K. Okada.

F. Schedule and assignments for completion of report

The Japanese scientists will revise some sections of the introduction and methods sections of the report to describe the methods used for distribution charts. Authors agreed it would be difficult to complete the discussion section by the October INPFC meetings, but plan to have all other sections completed by that time.

6. REPORT OF THE 1981 COOPERATIVE SURVEY IN THE EASTERN BERING SEA

Analysis of the 1981 survey data sets has been somewhat curtailed due to errors recently identified with demersal trawl gear performance and relative fishing power coefficients. A lengthy discussion was held regarding methods of applying fishing powers to the 1981 and 1982 cooperative survey data. Agreement could not be reached on this point. It was decided to calculate biomass estimates from the 1979, 1981, and 1982 cooperative survey data using 1979 fishing powers, using no fishing powers, and using 1982 fishing powers for 1982 data. Examination of abundance trends from these various methods of calculating biomass is expected to lead to an agreement on the fishing powers to be used.

U.S. scientists presented new updated depth contour charts of the continental slope region to replace less accurate ones used during earlier studies. Because of the increased precision of these new charts, stratification by standard depth zones and subsequent area calculations are more accurate, but varied somewhat from those derived from previous surveys. It was agreed that the 1981 and 1982 data sets from the slope be analyzed by new subarea sizes. The 1979 data will be reanalyzed relative to the revised areas and presented in the report. Differences and adjustments to strata boundaries and areas will be discussed in the text. The slope data will be analyzed by two depth strata, 100-400 fm. and 400-600 fm.

A. Completed drafts of the introduction and method sections

The initial drafts of the introduction and methods sections were reviewed. Japan will prepare tables indicating grouping and categorization of species used for various analysis. Modifications to the preliminary text will be conducted through correspondence.

B. Formats of the distribution figures

The United States has developed new computer software systems automating the generation of distributional figures that were previously done by hand. This system will be utilized in the production of figures demonstrating the distributional patterns of species and species groups encountered during the 1981 cooperative survey. Catch rate intervals used in the 1979 cooperative report will be adopted to provide comparability between survey findings. Since there was no overlap of survey areas between U.S. and Japanese vessels in 1981 as during 1979, species distributions for the overall survey area will be presented in one figure.

C. Formats of other figures and tables in results section

Formats of other figures and tables in the 1981 cooperative report were adopted during previous working group meetings. U.S. and Japanese scientists agreed that, at present, no major format changes were necessary. However, it was decided to add a table (like table 110 of the 1979 joint report) to the section on "Relative importance of individual species".

D. Contents of text for results section

Tentative plans are to follow the format and general text content presented in the 1979 U.S. data report.

E. Contents of discussion section

U.S. and Japanese scientists agreed to follow the general content outline of the discussion section presented in the 1979 U.S.-Japan joint report. Pertinent conclusions in the discussion section will be clarified as the results section is further developed.

F. Schedule and assignments for completion of report

The initial draft of the 1981 cooperative report should be completed by the end of 1983. Principal authors are R. Bakkala, K. Okada, K. Wakabayashi, and T. Sample.

7. REPORT OF THE 1982 COOPERATIVE SURVEY IN THE EASTERN BERING SEA

A. Completed data analysis

The current status of the data sets collected during the 1982 cooperative survey of the eastern Bering Sea was reviewed. Data collected during the United States portion of the survey have been fully edited and analyzed. However, interpretation of U.S. age structure collections have not been completed but may be finalized by late summer. Editing procedures on Japanese data have been completed and preliminary analysis initiated.

It was agreed that new subarea sizes used for the 1981 data analysis and two depth strata, 100-400 fm and 400-600 fm, will be used for the 1982 data analysis.

The analysis of the U.S. hydroacoustic portion of the survey is nearly completed. Progress is somewhat behind schedule since new analytical programs and procedures were developed to accommodate data collected from the new hydroacoustic systems used in 1982. Calculations of pollock biomass by age category should be completed by the end of July. In addition, relative abundance estimates of juvenile pollock (age 0) over the inner shelf region (20-60 fm) are nearing finalization.

## B. Format and outline for report

United States and Japanese scientists agreed to follow the general outline presented in the 1979 U.S. demersal data report. However, since the hydroacoustic survey data will be included in the 1982 report, several format modifications will be incorporated. Survey methods for the demersal and hydroacoustic studies will be presented separately. Results of both studies will also be discussed under separate subheadings of (1) haul and catch data, (2) environmental conditions, and (3) data analysis. A discussion section will be developed. As work on the 1982 cooperative report progresses, additional format changes may become necessary.

## C. Assignment of authors to sections of the report

Japan will develop the methods and introduction section while U.S. scientists will complete the analysis of the combined data sets. Further assignments and areas of responsibility will be made as work progresses. An initial draft of the report is scheduled by the end of 1983. Principal authors are R. Bakkala, K. Okada, K. Wakabayashi, A. Shimada, and J. June.

## 8. SUMMARY REPORT OF RESULTS FROM THE 1979, 1981, AND 1982 COOPERATIVE SURVEYS IN THE EASTERN BERING SEA

### A. General plan of report

Discussions on the development of a report summarizing the results of the 1979, 1981, and 1982 cooperative surveys were conducted. It was tentatively agreed that the report should be submitted to a journal with wide distribution such as the U.S. Fishery Bulletin. It was noted that a report submitted to the Fishery Bulletin would need to be brief. Consideration will also be given to preparing an expanded summary report that might be submitted to the INPFC Bulletin series. A decision on an outlet will be reached at the next Working Group meeting in November.

Both U.S. and Japanese scientists will further consider and develop an outline for this report through correspondence. The outline will be finalized and the contents of the various sections discussed at the next Working Group meeting scheduled in November, 1983.

### B. Authors

K. Okada, K. Wakabayashi, and R. G. Bakkala were designated as principal authors of the summary report. Relative areas of responsibilities for subsequent development of the report will be assigned during future meetings.

## 9. PLANNING FOR THE 1983 COOPERATIVE SURVEY IN THE ALEUTIAN ISLANDS REGION

### A. Commitments of vessel effort to the survey by each nation

The United States presented two survey plans for the 1983 Aleutian survey. The first plan is conditional upon approval for U.S. scientists to embark and disembark the Daito maru No.38 through Japanese ports. It includes

the number of days and stations assigned to each vessel, times and places where the vessels will work together, logistics for the exchange of scientists, and refueling considerations for the Daito maru No.38.

The second or alternate survey plan requires time for exchange of scientific personnel at Adak and Dutch Harbor and subsequent rendezvous with the NOAA research vessels Miller Freeman and Chapman. This plan permits fewer sampling stations because of time spent by the Daito maru No.38 running to transfer locations:

<u>Number of proposed stations</u>		
	First Plan	Alternate Plan
<u>Daito maru No.38</u>	243	216
<u>Miller Freeman</u>	85	75
<u>Chapman</u>	48	51

Scientists from both nations agreed the first plan is more desirable and tentatively agreed to adopt this proposal contingent upon final approval of foreign travel for the U.S. scientists. Japan will begin preparations for the survey based on the assumption that this approval is forthcoming.

B. Area of the survey and station pattern

The United States presented results of a study to improve the 1983 survey design based on the sampling pattern and catch results from the 1980 Aleutian survey. It was agreed that further stratification of analytical areas used in 1980 would be desirable and the following substrata were adopted:

<u>Analytical Area</u>	<u>Substrata (°longitude)</u>
Eastern	165-168°W
	168-170°W
Central	170-174°W
	174-177°W
	177-180°W
Southwest	170-175°E
	175-177°E
	177-180°E
Northwest	170-178°E
	177-180°E

It was also agreed that the Daito maru No.38 would commence the survey at Stalemate Bank (170°E longitude) and work east until the Miller Freeman arrives on the fishing grounds.

C. Coordination of U.S. and Japanese survey activities

The adopted sampling plan will be the principal means of coordinating vessel activities. Daily radio communication will be used to further coordinate survey activities.

D. Fishing power experiments

Comparative fishing experiments, closely coordinated in time, will be conducted by the Daito maru No.38 and the Miller Freeman and the Daito maru No.38 and the Chapman. The alternate line technique will be employed for these experiments.

E. Coordination of and methods of data collection

It was agreed to employ the catch handling and data collection techniques used during the 1980 Aleutian Survey. To facilitate data access to the NWAFC computer system, the U.S. will ship a data logger to the Port of Kushiro for installation on the Daito maru No.38.

F. Exchange of scientific personnel

The United States has agreed to place one participating scientist aboard the Daito maru No.38 during each of the four legs of the survey (3 week periods). The Japanese scientists also requested that NWAFC mensuration gear be used during one leg of the survey to determine vertical and horizontal openings of their trawl. U.S. scientists agreed to try and arrange the gear mensuration work.

10. FUTURE COOPERATIVE SURVEYS

Both Japanese and U.S. scientists recognized the importance of cooperative surveys and the significance of results that have been obtained from these efforts. Scientists from both nations expressed the need to continue cooperative surveys. The type of cooperative surveys to be conducted was discussed. Japanese scientists expressed a desire to investigate variability in CPUE estimates and conduct tagging studies in years when it is not necessary to sample continental slope waters. U.S. scientists, stated that they intend to develop a five year plan of research in the eastern Bering Sea. This plan will be submitted to the Far Seas Fisheries Research Laboratory for comments.

11. FUTURE MEETINGS

Experience has demonstrated that it takes three or four years to complete joint reports on results of cooperative surveys because of the need to accomplish much of the work through correspondence. It was agreed that means should be examined to complete these reports on a more timely basis. To accomplish this, it was proposed that authors spend a period of about a month together at critical periods in the preparation of the reports. Scientists of both nations agreed to investigate the possibilities of such exchanges within their respective agencies.

It was agreed to continue the present schedule of INPFC Working Group meetings of about a week to follow the annual meetings of INPFC and U.S.-Japan bilateral meetings. The Working Group RECOMMENDED that their next meeting be held in Seattle for one week following authors' participation in the 1983 annual meeting of INPFC. The INPFC secretariat was requested to provide an interpreter for that meeting.

