

PROPOSED FORMAT FOR REPORTING SALMONID CATCH,
ESCAPEMENT, AND WILD AND ARTIFICIAL PRODUCTION OF ANADROMOUS
JUVENILE SALMONIDS

by

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ABSTRACT

A format for a report on work plan item (A) of the Committee on Scientific Research and Statistics is proposed for consideration by the Committee. The document includes proposals for responsibility for reporting, units of measure, order of reporting species in tables, quantities used to report data, reporting of estimates, statistical areas, time periods, format of tables, and reporting of salmonid catch, escapement, and juvenile production data.

INTRODUCTION

Work plan item (A) of the Committee on Scientific Research and Statistics (CSRS), which is based on interim term of reference (1), states that the Committee shall "report on salmon catches, escapement, and wild and artificial production of juvenile salmon in 1992" (NPAFC 1993). In this document a format for a report on work plan item (A) is proposed for consideration by the Committee.

PROPOSED FORMAT

1. Responsibility for reporting. Each Party will be responsible for reporting its annual domestic catches of adult anadromous salmonids, annual domestic escapements of adult anadromous salmonids to spawning areas, and annual domestic production of wild and artificial anadromous juvenile salmonids for all species. Data reported by each Party should also include annual catches by domestic, commercial, and joint-venture fisheries on anadromous salmonids in waters adjacent to the Convention Area and annual bycatches of salmonids in domestic non-salmonid fisheries operating in the Convention Area and adjacent waters. Reports should be submitted to the Secretariat at the time of the annual meeting of the North Pacific Anadromous Fish Commission.
2. Units of Measure. All units of measure reported must be expressed in metric units. If measures are converted from other units, information on the method of conversion and conversion factors should be reported.
3. Order of Reporting Species in Tables. For tables that include multiple species, the order of listing of species must be as follows:
 1. *Oncorhynchus nerka* - sockeye salmon
 2. *Oncorhynchus keta* - chum salmon
 3. *Oncorhynchus gorbuscha* - pink salmon
 4. *Oncorhynchus kisutch* - coho salmon
 5. *Oncorhynchus tshawytscha* - chinook salmon
 6. *Oncorhynchus masou* - masu salmon
 7. *Oncorhynchus mykiss* - steelhead trout
4. Quantities Used to Report Data. Catch, escapement, and juvenile production data must be presented in terms of both numbers of fish (thousands of fish) and weight (tonnes, round weight). If conversion factors are used to calculate numbers from weight or vice versa, then these conversion factors must be reported.
5. Estimates. If catch, escapement, and production are estimated, then a description of the methodology used to make these estimates must be reported, and this description should include an assessment of the reliability of the estimates (for example, 95% statistical confidence intervals).
6. Statistical areas. Catch, escapement, and juvenile production data must be broken down into statistical reporting areas that encompass all freshwater, coastal, and offshore fishery areas, adult spawning areas, and wild and

artificial juvenile production areas for anadromous salmonids. Figures illustrating the locations and boundaries of all statistical areas must be included in the report. The same statistical areas should be used in all tables reporting catch, escapement, and juvenile production.

Statistical areas that were used by the International North Pacific Fisheries Commission (INPFC) to report annual commercial salmon catches can serve as a general guideline for the statistical areas that should be used to report catch, escapement, and juvenile production data for Canada, Japan, and the United States (refer to INPFC Statistical Yearbooks). The Committee should carefully review these historical statistical areas, particularly in terms of their appropriateness for reporting escapement and juvenile production data, and recommend changes, if necessary. New statistical areas will have to be defined for countries, states, and regions not previously reported (for example, Russia, Idaho, and the Yukon Territories).

Statistical areas used in historical databases to report salmon catches in some areas of the western Pacific Ocean have included the following regions:

1. Islands south of Kamchatka. This area is sometimes further divided into the following sub-areas: (1) Iturup I. and south, (2) Makanru I. to Urup I., and (3) Paramushir I. and north.
2. Primore (Japan Sea coast of Russia, south of Reineke Island). This region is sometimes further divided into the following sub-areas: (1) areas south of C. Lazarev and (2) Reineke I to C. Lazarev (including Sakhalin B. and Amur Firth).
3. Amur R. (Nikolaevski). This area is sometimes further divided into the following sub-areas: (1) estuary (vicinity of Nikolaevsk), (2) river mouth to the entrance of Amgum R., (3) Amgum R., and (4) upstream from the entrance of Amgum R.
4. Sakhalin Island. This area is sometimes further divided into the following sub-areas: (1) east coast, Sakhalin I (including Aniva Bay and (2) west coast, Sakhalin I., or sometimes: (1) east and west coasts, north of 50 N, (2) southwest coast, south of 50 N, (3) Aniva Bay, and (4) southeast coast, south of 50 N.
5. Okhotsk Sea coast. This area is sometimes further divided into the following sub-areas: (1) Reineke I. to Antykan, (2) Antykan to C. Enkan, (3) C. Enkan to C. Izmailova, and (4) C. Izmailova to C. Tolstoi.
6. Shelekhova Bay. This area is sometimes further divided into the following sub-areas: (1) C. Tolstoi to C. Taigonos, (2) C. Taigonos to C. Vozhedomova, and (3) C. Vozhedomova to C. Yuzhny.
7. West Kamchatka. This area is sometimes further divided into the following sub-areas: (1) C. Yuzhny to Kikhchik, (2) south of Kikhchik, (3) Bolshaya R., and (4) Ozernaya R.
8. East Kamchatka. This area is sometimes further divided into the following sub-areas: (1) south of C. Shipunski, (2) C. Kronotski to C. Shipunski, (3) C. Afrika to C. Kronotski, and (4) Komandorski Is.
9. Kamchatka River. This area is sometimes further divided into the following sub-areas: (1) estuary, (2) Kamchatka R., and (3) Kamchatka R. tributaries
10. Karaginski District. This area is sometimes further divided into the following sub-areas: (1) C. Afrika to C. Ozernoi, (2) C. Ozernoi to

Kichiga (including Karaginski I.), (3) Kichiga to C. Ilpinski (Uala Bay and Anapka Bay), (4) C. Ilpinski to C. Govena (Korfa Bay), and (5) C. Govena to C. Oliutorski (Oliutorski Bay).

11. Siberian Coast. This area is sometimes further divided into the following sub-areas: (1) C. Oliutorski to C. Navarin, (2) C. Navarin to C. Chukotski (Anadyr Bay), and (3) north of C. Chukotski.

12. Anadyr River. This area is sometimes further divided into the following sub-areas: (1) estuary and (2) Anadyr R.

The Committee should consider whether or not these historical statistical areas are adequate for reporting of Russian salmonid catch, escapement, and juvenile production data, and suggest appropriate changes.

The use of 1-degree x 1-degree statistical areas (that is, the 1-degree x 1-degree area northeast of the nearest longitude/latitude intersection in whole degrees) to report data on offshore catches or bycatches of salmonids in the Convention area and adjacent waters is recommended. The 1-degree x 1-degree statistical areas should be designated as the last two digits of longitude in degrees followed by the two digits of latitude in degrees for the southwest intersection of latitude and longitude of the area. This convention should be used east and west of 180 degrees and also at 180 degrees. The letters "E" or "W" should be placed in front of the four digits to denote eastern and western hemisphere, and 180 degrees should be designated by a "W". For example, area E7550 and W8050 are used to designate coordinates in the 1-degree x 1-degree area northeast of 175 degrees east longitude and 50 degrees North latitude, and W8050 is used to designate coordinates in the 1-degree x 1-degree area northeast of 180 degrees longitude and 50 degrees North latitude.

7. Time periods. All catch, escapement, and juvenile production data should be presented in the form of annual totals (January 1 to December 30).

8. Format of Tables. All tables should be of the following general format:

Stat. Area	Species						
	Total	Sockeye	Chum	Pink	Coho	Chinook	Masu Steelhead

Separate tables in the above format should be provided for each of the following:

1. Catch
2. Escapement
3. Juvenile production (wild and artificial).

9. Catch. Annual catch should be summarized by species and by statistical area in thousands of fish and in tonnes. Figures illustrating the locations and boundaries of statistical areas should be provided. Catch in thousands of fish and catch in tonnes should be provided in separate tables. The catch data should be inclusive of all categories of fisheries, for example, commercial, treaty or aboriginal, recreational (sport), subsistence, joint-venture, and illegal fisheries (for example, illegal gaffing or snagging), and

a breakdown of catch by fishery category for each statistical area should be presented in the tables. Separate tables can be provided for each fishery category if this method of organization is preferred. If reported figures are estimated, then the methods used to estimate catches should be reported, and this report should include an assessment of the reliability of the estimates (for example, 95% confidence intervals or, at a minimum, a classification scheme such as "not reliable" or "reliable"). If no catch is associated with a statistical area, then this should be indicated in the table or in a footnote by the statement "no catch in this area." If data are missing or not available for a statistical area or for a fishery category within a statistical area, then this should be indicated in the table or in a footnote to the table by the statement "no data available." If data are reported for only a portion of the catch in a statistical area, then the data that are missing should be explained in a footnote to the table and identified by the phrase "data are incomplete."

If average weights of fish are used to calculate numbers of fish, a separate table of annual average weights of fish (in kilograms) by species and by statistical area (and by fishery category, if necessary) should also be provided.

10. Escapement. Data on annual escapement of adult salmon to spawning areas should be summarized by species and by statistical area in thousands of fish and in tonnes. Escapement in thousands of fish and in tonnes should be provided in separate tables. The same statistical areas used to report inshore catches should be used to report escapement data. Total escapement of adult salmon to all spawning grounds that are located within a statistical area should be reported. If reported figures are estimated, then the methods used to estimate escapement should be reported, and this report should include an assessment of the reliability of the estimates (for example, 95% confidence intervals or, at a minimum, a classification scheme such as "not reliable" or "reliable"). If no adult escapement is associated with a statistical area, then this should be indicated in the table or in a footnote by the statement "no escapement in this area." If data are missing or not available for a statistical area, then this should be indicated in the table or in a footnote to the table by the statement "no data available." If data are reported for only a portion of the spawning grounds in a statistical area, then the data that are missing should be explained in a footnote to the table and identified by the phrase "data are incomplete."

11. Wild and artificial production of anadromous juvenile salmonids. Data on wild and artificial production of anadromous juvenile salmonids should be summarized by species and by statistical area in thousands of fish and in tonnes. Wild and artificial production of anadromous juvenile salmon in thousands of fish and in tonnes should be provided in separate tables. The same statistical areas used to report catch and escapement should be used to report juvenile production data. Total annual wild and artificial production of anadromous juvenile salmonids within a statistical area should be reported, and figures for wild and artificial production should be listed separately. If reported figures are estimated, then the methods used to estimate juvenile production should be reported, and this report should include an assessment of the reliability of the estimates (for example, 95% confidence intervals or, at a minimum, a classification scheme such as "not reliable" or "reliable"). If no juvenile salmonid production is associated with a statistical area, then this should be indicated in the table or in a footnote by the statement "no juvenile production in this area." If data are missing or not available for a statistical area, then this should be indicated in the table or in a footnote to the table by the statement "no data available." If data are reported for only a portion of the juvenile production in a statistical area, then the data that are missing should be explained in a footnote to the table and identified by the phrase "data are incomplete."

REFERENCES

North Pacific Anadromous Fish Commission. 1993. Report of the Committee on Scientific Research and Statistic. NPAFC Doc. 10. North Pacific Anadromous Fish Commission. Vancouver, B.C. Canada. V6T 1X2. 7 pp.